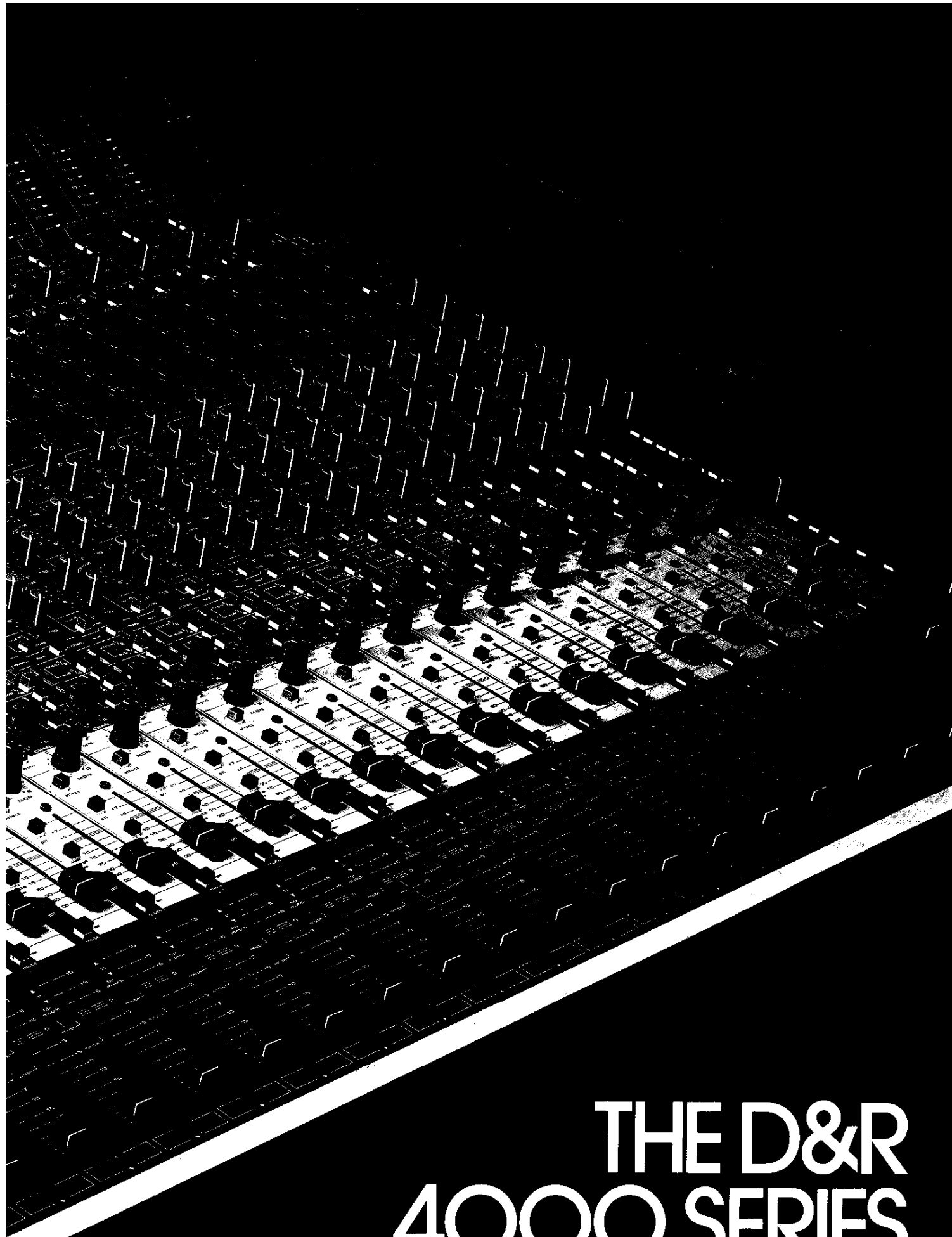


"4000 SERIES"

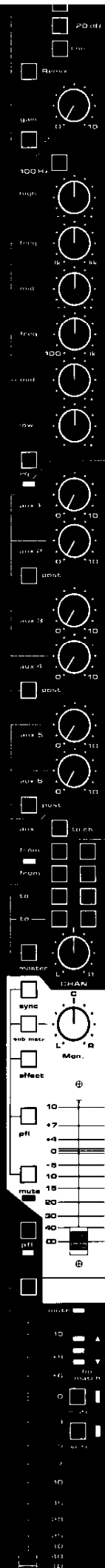
USER MANUAL

DNR



THE D&R 4000 SERIES IN-LINE SYSTEM

DESCRIPTION OF CONSOLE CONFIGURATION



LED BAR

AUX TO CHANNEL

MIC

SUBGROUPING

LINE

REMIX

GAIN

PHASE

HIGH PASS FILTER

EQUALIZERS

PAN-POT

MONITOR SECTION
SYNC

AUX

SUBMASTER

EFFECT



DAVID R. BROWN

P.F.L. AND MUTE (MONITOR)

FADER MONITOR

P.F.L. AND MUTE (CHANNEL)

FADER (CHANNEL)

AUX MASTERS

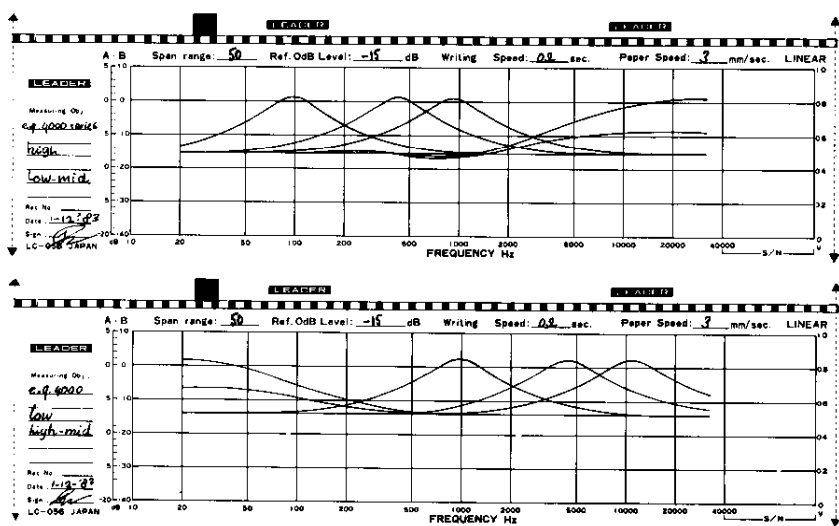
INPUTS/OUTPUTS CHANNEL

C.R.M.

PATCHBAY

MASTER SECTION

TYPICAL EQUALIZER AND FILTER CURVES



SPECIFICATIONS

MICROPHONE PREAMPLIFIER

LINE/REMIX AMPLIFIER

EQUALIZER SECTION

OVERALL PERFORMANCE

RECORD MODE

MIX MODE

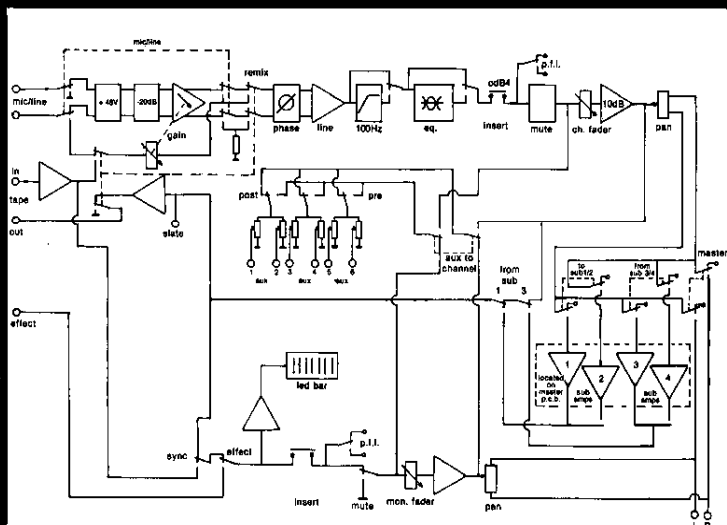
CROSSTALK

MIX MODE

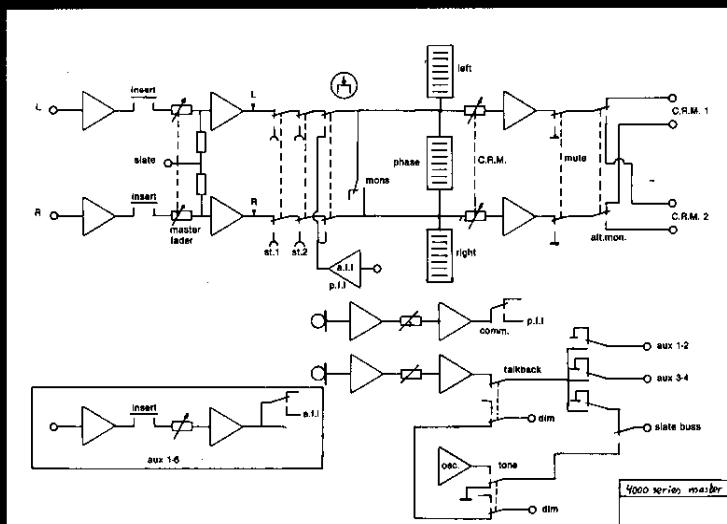
DIMENSIONS

FADER AUTOMATION READY

IN/OUTPUT CHANNEL



MASTER



INTRODUCTION

The D & R 4000 series is distinguishable from other desks, employing in-line mixing in various ways. Firstly a word about how we've achieved such technical excellence for such a competitive price.

We have employed a plug and flatcable wiring system which means that the individual channels are interchangeable with each other thus making the desk fully modular. Another technical innovation which helps hold the price of the 4000 series down is a completely new way of routing which eliminates the need for the complicated switching and wiring circuits found on conventional desks leading to a saving of 150 switches on a 32 channel mixer.

A simple patch-bay which facilitates very easy patching is also the result of our cost conscious design efforts.

The console itself is of a superb design, the modules are mounted individually in aluminium "U" profiles with clear unerasable lettering protected by a polycarbonate film. These profiles are set into the sturdy metal housing which has attractive wooden sides.

The well designed control lay-out facilitates pleasant mixing without the confusion that usually arises from the array of knobs and switches found on mixing desks in general.

The mixers in the 4000 series rank among our finest products and are the result of 10 years research into mixing desk design which has led to many innovations and developments enabling us to offer you superb desks at very competitive prices.

Design Highlights

F.E.T. switching is employed giving practically unmeasurable low distortion and a shut off in excess of 90 dB.

A completely new approach to limiting of above audio range frequencies, through passive filtering (instead of the standard active filtering) gives this console as all our other designs an incredible transparency through its absence of transient distortion. By critically damping every integrated circuit at 40 KHz square waves we have achieved complete elimination of overshoot and/or ringing and slewing.

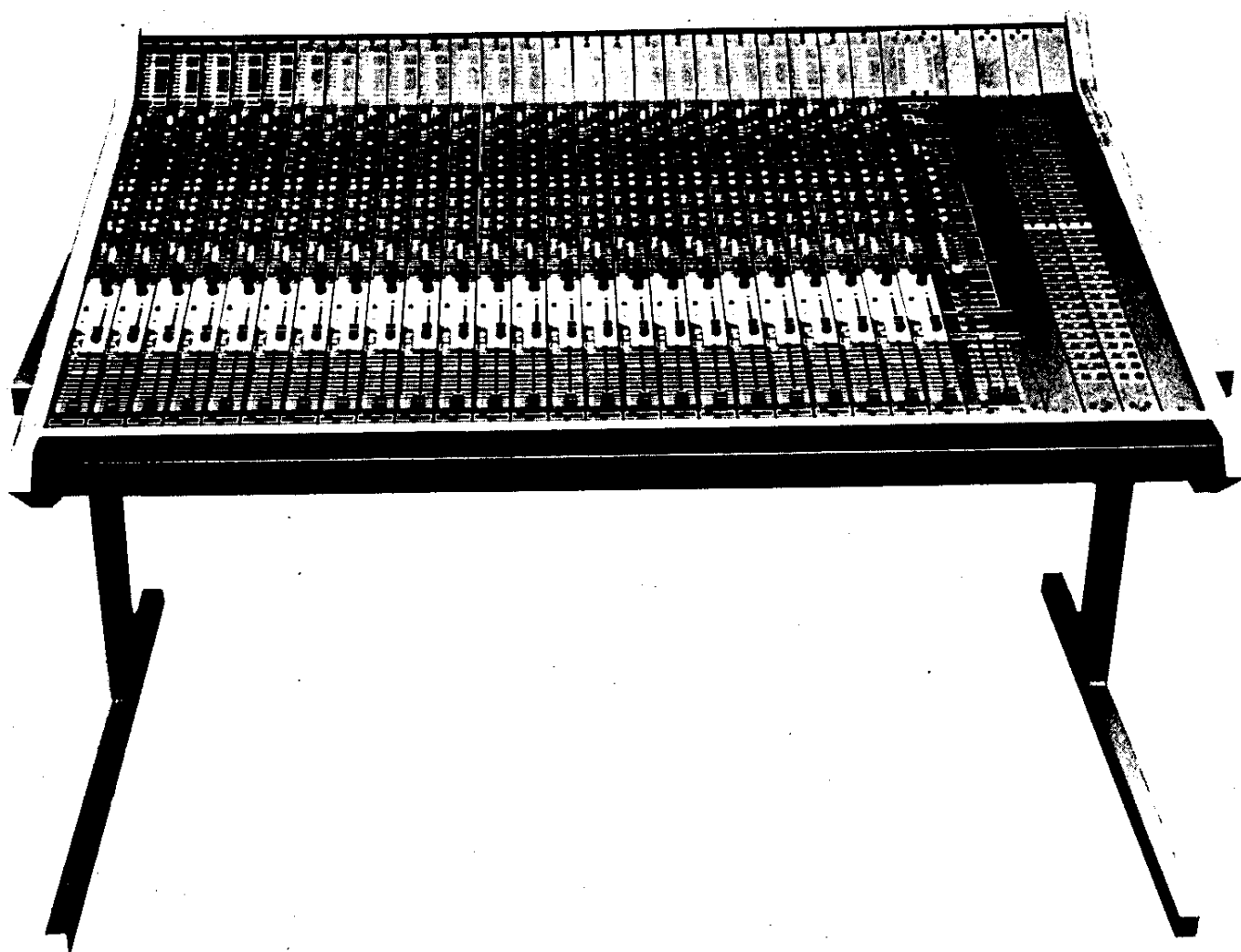
At the mic inputs all the amplification is performed by discrete low noise transistors and throughout the signal path by Bi-Fet op-amps (series TL 070), while the mixing amps utilise the reknowned industrial standard low noise audio op-amp NE 5534 AN.

We have chosen for a minimum audiopath to achieve total transparency.

Due to an excellent circuit design there is a minimum of crosstalk, control interaction and this combined with the superb printed circuit board lay-out contributes to a very stable and low noise product.

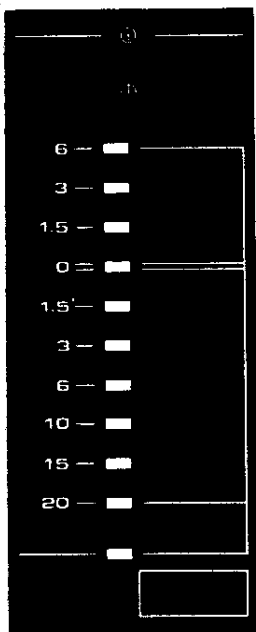
Power supply

The power supply is housed in a 19", rack mounting case and consists of three fully independant and protected powersupplies with very low ripples.



A short rundown of the series 4000 possibilities

- 11 segment positive/negative reading peak-bargraph meter per in/output channel
- 48V phantom powering, switchable per channel
- click free phase reverse switch for mic/line and remix signals entering the console
- extremely low noise electronically R.F. screened, balanced mic amps
- simultaneous sync/remix inputs for +4 dBu as well as -10 dBV
- 100 Hz high-pass filter
- 4 band sweep eq. of novel design without interacting control functions
- 6 aux sends pre/post switchable and selectable from channel and monitor signal paths
- completely new free floating in/outputs from subgroup amps making subgrouping to any multitrack channel possible with a minimum of switches
- simultaneous routing to master, direct output and group summing amps possible
- sync and effect inputs per channel, changing a 24 console into a 48 line input remix console
- monitor mute and p.f.l.
- channel mute and p.f.l.
- 100 mm channel fader, 60 mm monitor fader
- 2 inserts per channel
- simultaneous multitrack feed outputs for +4 dBu and -10 dBV available
- master section with 25 segment led bars and phase correlation meter
- low distortion 1 KHz line up oscillator
- talkback with built in electret and routing
- communication system switchable via the a.f.l./p.f.l. system
- 6 master aux sends with individual selectable a.f.l. switches
- comprehensive control room monitor section with alternative monitor loudspeaker switching, mono switch and mute switching
- two stereo master recorders can be played back (+4 dBu/-10 dBV inputs available)
- modular 64 point patchbay modules
- all connections via XLR and jackplugs



DESCRIPTION OF CONSOLE CONFIGURATION

Ledbar

The 11 segment ledbar (the first led indicates only that the power supply is on) is a peakreading instrument indicating both positive and negative peaks which is absolutely necessary in modern recording. The level calibration is adjustable from the back of the console with a multiturn preset potentiometer. The ledbar reads all signals appearing before the insertion point of the monitor/effect section. Therefore all signals that are audible via monitor p.f.i. This could be the multitrack input, the multitrack sync output, the multitrack remix, or the effect input. It is also possible to use the monitor section as an effect return without having to decouple the ledbar from the multitrack replay (remix) output. Do not patch into the effect input but into the monitor insertion input with effect returns. The ledbar continues to register the multitrack recorder.

Mic

Below the ledbar section are the input circuit controls and switches. The first being the, per channel, switchable +48V phantom power supply. Below this is the -20 dB pad, necessary for extremely high input signals on the mic input.



Line

The line switch changes the XLR input to line level sensitivity and also changes the balanced mic input connection into an unbalanced line input. The input sensitivity ranges from -10 dBu to +20 dBu.

Remix

The remix switch, which also activates a line level input has priority over the line switch. The remix input is combined with the sync input on the back of the console.

Gain

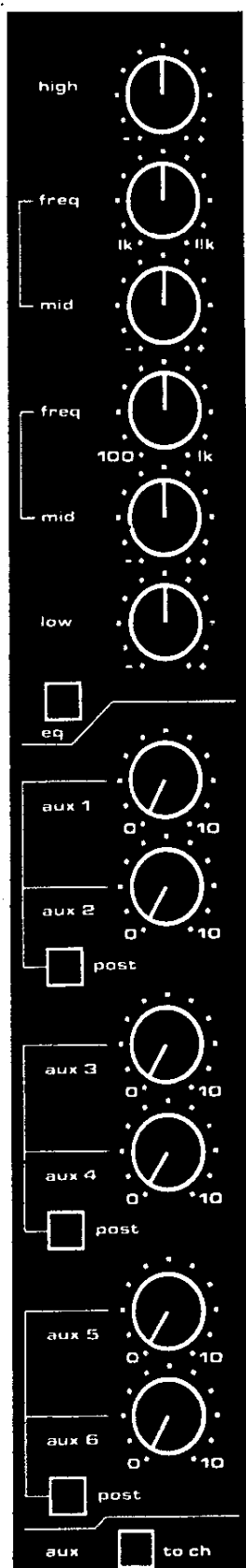
The gain control acts for the mic amplifier as a feedback control and in the line/remix mode as an input attenuator. The mic gain ranges from -20 dB to -64 dB whilst providing an enormous headroom with a minimum of 40 dB.

Phase

This phase reversal switch is active on both mic and line/remix inputs which proves handy in all sorts of recording situations.

High Pass Filter

The high-pass filter is a fixed frequency filter with a -3 dB turn over frequency at 100 Hz. The slope is 9 dB per octave.



Equalizers

The equalizer stands out by virtue of its simple yet effective design, with a minimum audiopath which guarantees a good signal to noise ratio. It is of a parametric 4 band design which spans the whole audio spectrum. The high shelves at 12 KHz and the low at 60 Hz. The high mids from 1 KHz to 11 KHz and the low mids from 100 Hz to 1 KHz. The lift and cut range of all 4 equalizer sections is ± 16 dB. The point of turnover frequencies in this equalizer will pleasantly surprise you. In the eventuality of still further equalisation being necessary there follows an insertion point which makes insertion of additional e.q. units possible. The whole e.q. section is bypassable with a silent switch.

Aux

The 4000 series offers in total 6 individual aux sends which easily allows for the most extensive remix sessions. The aux sends are per pair switchable pre/post the monitor/channel fader. Basically the 6 sends are wired pre/post the monitor fader which makes it possible to have foldback as well as effect pre and post the multitrack machine.

Aux to Channel

This switch connects all the 6 sends pre/post the channel fader this being necessary in the remix mode.

Subgrouping

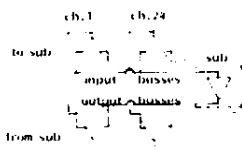
Subgrouping in the 4000 console is done in a new way and demands a new way of thinking from the engineer. The basic idea is to have subgroup amplifiers only where you need them. This means that there is no group amplifier preceeding every multitrack channel as you might have been used to in conventional in-line designs.

In the 4000 console there are only 4 subgroup amplifiers, only 4? Yes, only 4, but these 4 subgroups are fully floating. You can switch them to the inputs as well as to the outputs anywhere in the console. Imagine, routing from channel 1 to channel 28 without patching, this is possible in the 4000 series in the following way.

There are 4 switches for this novel routing system, 2 for going to the subgroups and 2 for coming from the subgroups, called "to sub" and "from sub".

If you are not subgrouping, the signal coming from the channel fader goes directly to the multitrack machine. But let's say you want to stereo subgroup channel 1 to 8 to multitrack channel 1 and 2. This means that you need 2 subgroups because you want to do it in stereo. The first thing you have to do is to bring the signals to the subgroups by pushing the switch marked "to sub $\frac{1}{2}$ " (you are using now subgroup 1 and 2). The pan-pot determines the signal level sent to subgroup 1 and/or 2, depending on its position, left, right or central.

The signals coming from channel 1 to 8 are now brought to subgroup 1 and 2 (physically located in the master section). But, now, you need them on multitrack channel 1 and 2. You only have to connect the



multitrack inputs to the outputs of the subgroup amps. This is done by switching the "from sub 1/2" switches. As you can see it is very easy to bring this signal to any multitrack input or even more than 1 multitrack channel, if you like.

For another example you might want to bring channel, let's say 9 – 10 to track 4. Push in, in channel 9 – 10, the "to sub 1/2" switch (or "to sub 3/4" switch, whichever one is available), pan to the right and push the switch in channel 4 called "from sub 1/2" (or again "from sub 3/4" if chosen). You see this is a very flexible way of routing a signal through the console. In fact it is possible to route, without patching, from any input to any output.

This system allows a great saving in switches electronics and labour when compared with the conventional 24 track routing system in a standard in-line console.

Besides sending the signal to the subgroups it is also possible to feed the master section simultaneously.

Pan-Pot

As already described above, this control (with a -3 dB attenuation when set central) pans the signal between the odd and even subgroups as well as left/right master buss, if selected.

Monitor Section

The monitor section (light coloured) takes care of all the monitoring in the channel.

Sync

The sync switch in the monitor section handles the sync switching of the multitrack recorder. In the on position, the monitor section in the channel is switched from the input to the output of the multitrack machine.

Effect

The switch "effect" makes it possible to use the monitor sections as effect returns. In this manner you have control over as many effect returns as the console has channels. The effect inputs are on the back of the console.

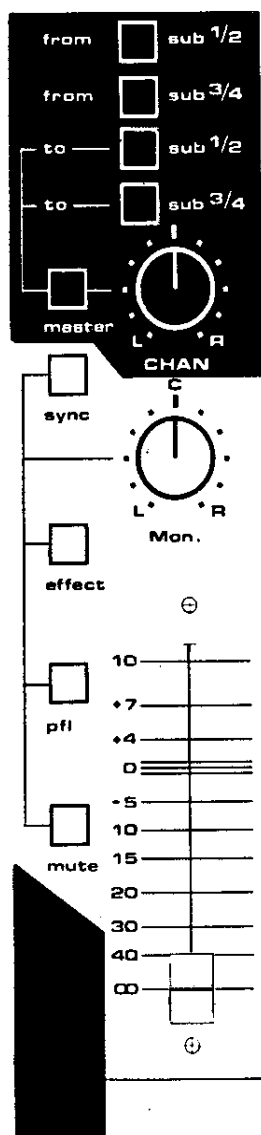
P.F.L. and Mute (Monitor)

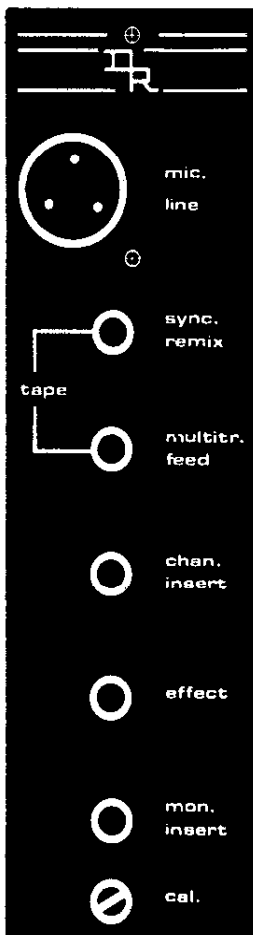
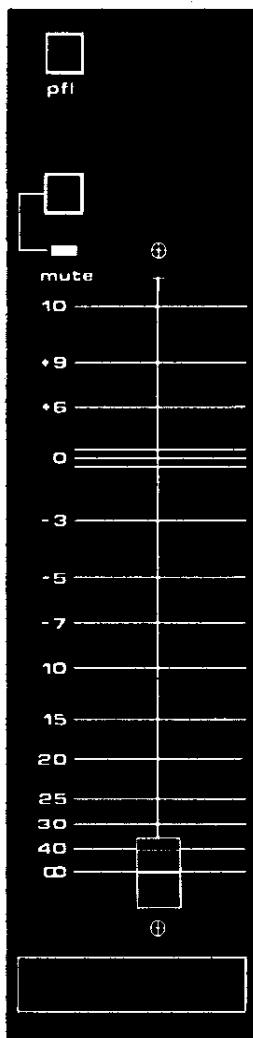
The p.f.l. switch enables you to prefade listen to the signal coming from the channel or from the multitrack as well as from the effect input. The p.f.l. is of the autotype, it switches automatically the stereo master from the monitoring and substitutes it for the activated channel.

Muting is done by cancelling the signal coming from the channel, sync or effect inputs. The p.f.l. is not affected by muting.

Fader Monitor

This small fader, 58 mm travel, is of the carbontrack type. There is a 10 dB gain factor in the amplifier which follows the fader.





P.F.I. and Mute (Channel)

The p.f.i. and mute switches in the channels have the same functions as in the monitor sections. The p.f.i. does not interrupt the signal path. The mute function has a led to indicate its function.

Fader (Channel)

The channel fader is of the carbontrack type with a 100 mm length. Standard is the Noble fader. Options are A.L.P.S. and Penny and Giles. There is also a 10 dB gain factor in the amplifier which follows the channel fader.

Mechanical Strength

The mechanical strength of the individual modules is achieved by using a specially manufactured "U" type profile to which the printed circuit board is firmly secured.

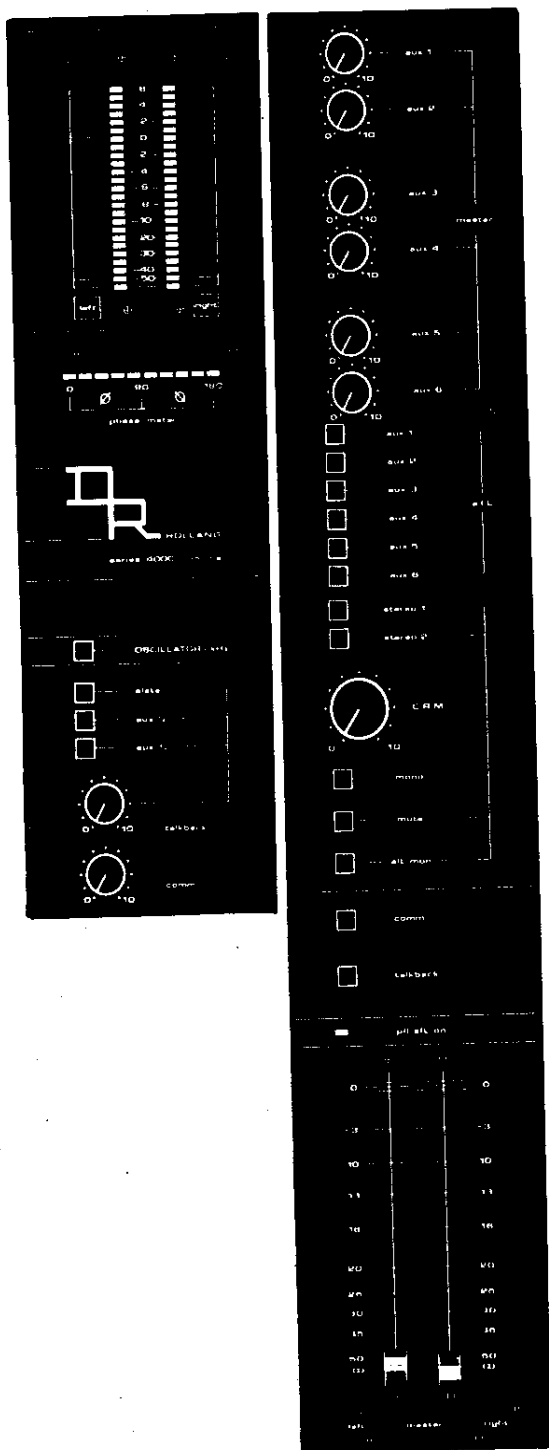
Inputs/Outputs Channel

On the back of the console you will find the in/outputs of the channels. On top there is the XLR type input connector for the mic and line amp. The mic amp is balanced and the line unbalanced. Next there is the combined sync/remix input which accepts two levels of +4 dBu (the professional standard) and the -10 dBV which is the semi-professional standard now-a-days. Multitrack Feed is the output of the channel which has to be plugged into the input of the multitrack machine. On this socket also there are +4 dBu and -10 dBV levels available. We have used the following wiring configuration. On tip of the jack the -10 dBV signal is available and on the ring simultaneously the +4 dBu standard.

By connecting to the appropriate soldertag on the stereo jack plug you choose the tape level you are going to use. The channel insert is the jack into which you can insert ancillary equipment such as compressors noise gates and other frequently used effect devices. The tip is the send and the ring is the return.

The effect jack is there as an extra line level input in the remix situation. The monitor insert is there to make possible extra equalizing or the insertion of other ancillary equipment in the monitoring section of the channel.

The calibration control is there to calibrate the level of the peak reading ledbar. It is factory adjusted to indicate 6 dB down from the signal which is actually measured. This way of calibrating a peak reading ledbar is common practice now-a-days.



Master Section

The following describes from above to below the use and function of the master controls. First there are the extremely precise 25 segment peak reading ledbars with both a positive and negative reading display. The attack and decay characteristics conform to standards used throughout the world. Below these ledbars is the phase correlation meter which is wired in parallel with the ledbar meters. This precision instrument indicates the exact phase relationship between two given signals. A phase shift of 90° degrees or less is acceptable for mono compatibility but above this (out of green into red) is unacceptable. The phase meter registers a correct reading between - 40 dBu and + 20 dBu. When presented with only one signal or with a signal below - 40 dBu it switches itself off, so avoiding any incorrect reading.

The oscillator is of the phase shift type which produces a low distortion 1 KHz sinewave.

When its switch is activated a 1 KHz tone is available at all the multitrack outputs at + 4 dBu / - 10 dBV level, which makes lining up machines a simple procedure.

Then there is the communication section. We at D & R find good communication between the studio and control room an absolute necessity for the success of a recording session. Therefore the 4000 series offers the possibility of comprehensive communication from the studio to the control room at all times and in all stages of a session. It is also possible to speak from the control room to the studio via all outgoing lines by means of the aux outputs.

The slate switch makes it possible to put information on tape.

By use of the talkback switch the C.R.M. is attenuated by 20 dB. There is a high quality, built in, electret microphone for talkback purposes. A high pass filter further increases the clarity.

Aux Masters

The 6 aux masters with their a.f.l. switches control the total outgoing level of the aux sends.

C.R.M.

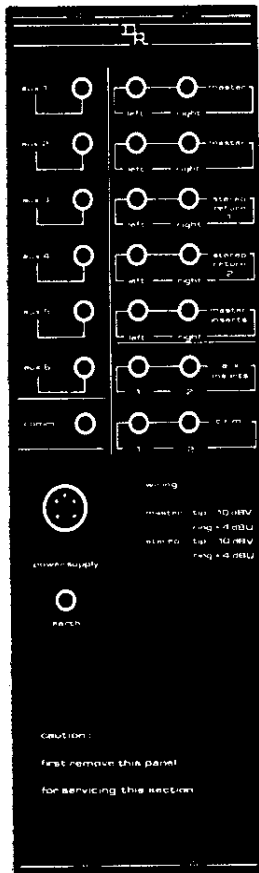
C.R.M. stands for Control Room Monitor and regulates the level of all the signals going to the control monitor. A number of push-button switches is found in the neighbourhood of the C.R.M. switch:

The stereo 1 and 2 switch: this switch makes it possible to select from 2 stereo sources instead of the master mix down.

The mono switch makes comparison between stereo and mono possible. Mute cancels the monitor completely. Alt. mon. stands for alternative monitoring. It is possible with this switch to bring in another monitor system if one is connected.

The p.f.l./a.f.l. led indicates whether p.f.l./a.f.l. switches anywhere in the console have been activated.

Noble faders are standard but A.L.P.S. or Penny and Giles are available optionally.



Master Section In/Outputs

There are 21 in/outputs on the master output section. There follows a description of these from top to bottom, beginning with the left hand row as viewed from the rear of the desk. Firstly there are the Aux outputs 1–6. All the aux outputs are unbalanced at +4 dBu. Then below the six aux jack sockets there is a seventh, which is a balanced mic input for communication purposes.

The middle row of master outputs and the row on the right when viewed from the rear are as follows from top to bottom.

Firstly the master left/right outputs with an output level of –10 dBV on the tip of the stereo jack and +4 dBu on the ring. Next we have another master output similar to that just described. This second output is intended for use with a second master machine. Below these master-outputs are the 2 stereo returns for the master machine. These stereo jacks have an input sensitivity of –10 dBV on the tips and +4 dBu on the rings.

Below the stereo returns are the master inserts and two aux inserts and finally the 2 C.R.M. jacks which deliver the C.R.M. outputs.

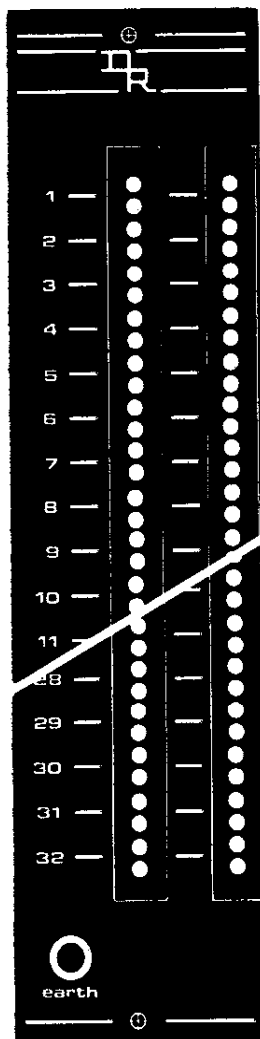
Power supply connection is by means of a 5 way XLR connector. The two earth connectors (one below the power supply input socket and one in the patch bay) are to be used when a patchbay is installed in the mainframe to prevent earth loops when patching. Link the two points with a heavy earthing conductor.

Patchbay

The patchbay is modular and has provision for 64 break patch-points per module. The connections between the patch-points and the socket at the rear of the console are made via two printed circuit boards which have at the back molex pin-connectors.

Patching is done as follows: It is necessary to solder a stereo jack plug to one end of a twin screened lead (in which each of the conductors is individually screened). To the other end solder a two pin molex female connector. You now have the standard 4000 series internal patchcord.

Now let's say, for instance, you want to wire the channel 1 insertion point to the patchbay. To do this take a 4000 series patch cord (Jack-Molex) plug the stereo jack into the insertion socket on channel 1 and connect the Molex female connector to the pins marked 1 on the Molex strip connector on the rear of the desk. In this way you can bring any in/output jack to the patchbay by means of simple external wiring and further it is an economical method which saves time.



A. Single source on single track-Recording

The microphone or line signal enters the in/output channel, at the point where the mic/line push button will determine the input mode. A gain control for the microphone and line signals is provided with additional - 20 dB pad for the microphone signal. Phase reverse can be used on both mic and line signals. If necessary, the 48 volt phantom powering can be switched on.

Firstly the signal goes through the high-pass filter which can be switched in or out. After passing through the high-pass filter it enters the equalizer section which can also be bypassed. After the e.q. the signal appears at the ancillary equipment jacksocket. This provides a send and return path for the introduction of effects or other treatment of the signal. The p.f.l. switch monitors after the insertion point, but before the mute switch. Directly after the mute switch (above the mute led) is the long travel fader. This fader sends the signal via the channel pan-pot to the master/group busses if activated.

In case of a single track recording it is better to by-pass the pan-pot and the group-amps. This is done simply by not activating any of the "to" and "from" switches. In this way only the post fader channel amp is directly connected to the multitrack input. There are two ways of monitoring the signal, directly from the channel:

- by pushing the master routing switch, which leaves the monitor section free for other purposes.
- the 2nd way is to use the monitor fader and its associated pan-pot which feeds the signal directly to the master mix busses, if the monitor mute is not activated.

It is an absolute necessity to mute every unused monitor channel in order to achieve best overall signal to noise ratio in the master mix busses. This muting removes the mix resistors from the buss and thereby provides a lower noise gain. In an unused channel the master switch has to be inactive to achieve best signal to noise performance.

When no effect switch is activated the led bargraph will read the signal going to the multitrack. Aux sends can best be used pre/post from the monitor fader. In this configuration the aux sends are also available in the sync mode. If you wish to monitor from the channel you have to push the aux to channel switch.

The standard way to record in one channel is to drive the multitrack machine as hard as possible and to monitor the signal through the small fader. Both in the recording mode and in the sync mode.

B. Multiple sources on one or two tracks

When more than one microphone or line signal has to be recorded on a single track or on two tracks for stereo, a submix facility will be required.

On the 4000 series this can be done, simply, without patching. The microphone or line signals will be processed as described under A, except that one of the two sub switches must be activated. If you push, for

example, routing switch "to sub ½" in channel 1, the signal will, depending upon the position of the channel pan-pot, go to subgroup 1 and/or 2.

To bring the output of this subgrouped channel to multitrack channel 1, it is only necessary to activate the switch "from sub ½" in channel 1. Now the subgrouped signal replaces the channel signal. In this way you can route as many channels to the subgroup amps as you wish and connect the output to any multitrack input in the console wherever you like. It is possible to make 2 stereo subgroups at the same time and to bring these to 4 multitrack channels. If more subgroups are required you can use the 2 stereo subgroups as 4 mono subgroups by using the pan-pots.

When taking signal from the subgroups, note that odd numbered channels are fed by subgroup outputs 1 and 3 and even numbered channels by subgroup outputs 2 and 4.

Sub

Imagine you have a mix of 12 channels in perfect balance routed to track 1 + 2 and because the overall signal level is too high for the tape machine it becomes necessary to attenuate the mix. This can be done as follows.

De-activate the "from sub ½" switches in channel 1 + 2 and activate the same numbered switches in two other unused channels.

From these unused channels you can now patch from the monitor insert sends into another two unused channels. In these two channels activate "to sub ¾" and activate the "from sub ¾" in channels 1 + 2.

Sync

The sync replay is done simply by activating the sync switch. The monitor faders handle the sync replay signals.

C. Overdub

When a small part of an already recorded track has to be re-recorded, several complications arise due to the fact that for monitoring and cueing purposes the track has to be replayed in the sync mode before and after the part to be re-recorded, whilst during the re-recording the channel should function as for normal recording (as described under A). When the recorder gives the input signal on its outputs (if not in the sync or replay mode), the following simple set-up is preferred.

Process the microphone or line signal as under A, but with the channel in the sync mode. Now the engineer can listen to the sync signal coming from the machine which tells him at which moment he will go into overdub and as soon as the multitrack goes into the record mode he hears the musician playing or singing. If the engineer would like to hear the musician also before and after the dubbing he only has to push the master routing switch.

On the other hand the musician himself has to hear the

sync signal as a guide as to where to start dubbing and he wants to hear himself before dubbing.

The set-up for this situation is as follows. Use another input channel and give the studio foldback from for instance aux 1. The musician now hears himself (activate "aux to channel" first) via this channel's foldback facilities.

Route this signal to the multitrack and place the multitracks sync signal also on the aux 1 buss. The musician will hear himself continuously before, during and after going into the recording mode.

D. Remix

When all tracks have been recorded to full satisfaction, the final end mix will have to be made. All the remix switches have to be activated and the master switch. "Aux to channel" has to be activated too. This is a basic set up for 8 - 16 - 24 tracks into 2. Ensure that unused channels have their master switches in the off position and that the muting switches in the monitoring section are in the "mute" mode to optimise signal to noise ratio.

Each channel monitor section (light coloured) has an effect return. This can be used as an extra input in the remix. These can be used in combination with the mic/line inputs. A 24 channel desk then provides 48 inputs.

Subgrouping in the remix is easily done by removing those signals from the master busses (de-activate the "master" switch) which have to be subgrouped and routing them to the subgroups.

In those channels where you activate the "from sub" switches you have a pre-master subfader in the monitoring section.

By following the signal path in the block-diagram the aforementioned situations will become clear.

Servicing

Servicing a module is very easy. Firstly remove all the in/output jacks from the back of the channel. Then unscrew the back panel and take it out of the console after having disconnected the XLR plug. Now remove the 24 conductor molex flatcable and the 6 conductor flatcable. Next step is to unscrew the module and take it out of the mainframe. In the master section you have to unplug the power XLR plug before taking out the master module.

Summary

It should now be apparent that the D & R 4000 series in-line consoles represent a novel approach to console design. We should also like to bring to your attention the following facts.

Console construction is made from steel which gives an excellent shielding from crosstalk and external R.F.I. or E.M.I. (noise).

As already stated this 4000 series is fully modular. This means that any mainframe can accept 10 modules of 47 mm width. The master module is twice this width. As an example 1 mainframe can accept:

- 8 in/output modules and one master
- 4 in/output modules 4 blank panels and one master
- 6 in/output modules 1 master and 2 patchpanel modules.

2 mainframes can accept:

- 16 in/output modules 1 master module 2 patchpanel modules.

3 mainframes can accept:

- 24 in/output modules 1 master module 4 patchpanel modules.

All modules are fully interchangeable in the mainframe to realize any combination you have in mind.

Options

Optional extra's are available if desired

- e.q. on/off leds
- p.f.l. on/off leds
- from sub on/off leds
- monitor mute on/off leds
- A.L.P.S. professional carbon track faders
- Penny & Giles conductive plastic faders
- Stands
- Fader and Mute automation system "SCORE" (Studio Computer REmix).

Ordering Information

Quant.	description	costs	total
	Mainframe subframe channels master blindpanel patchpanel patch cords int. patch cords ext. faders opt. leds e.q. leds p.f.l. leds from sub. leds mute stands		

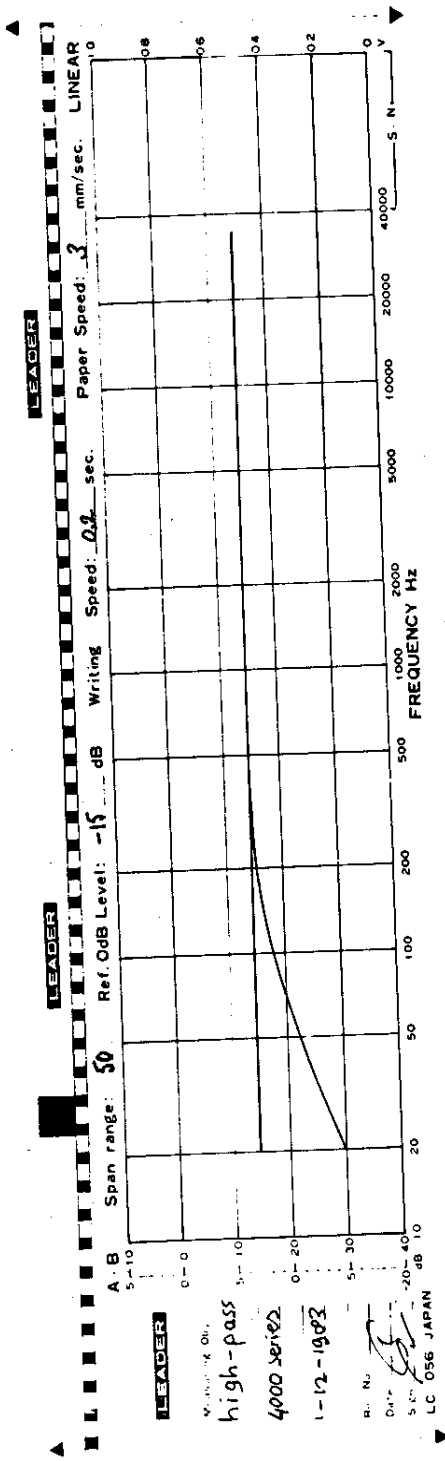
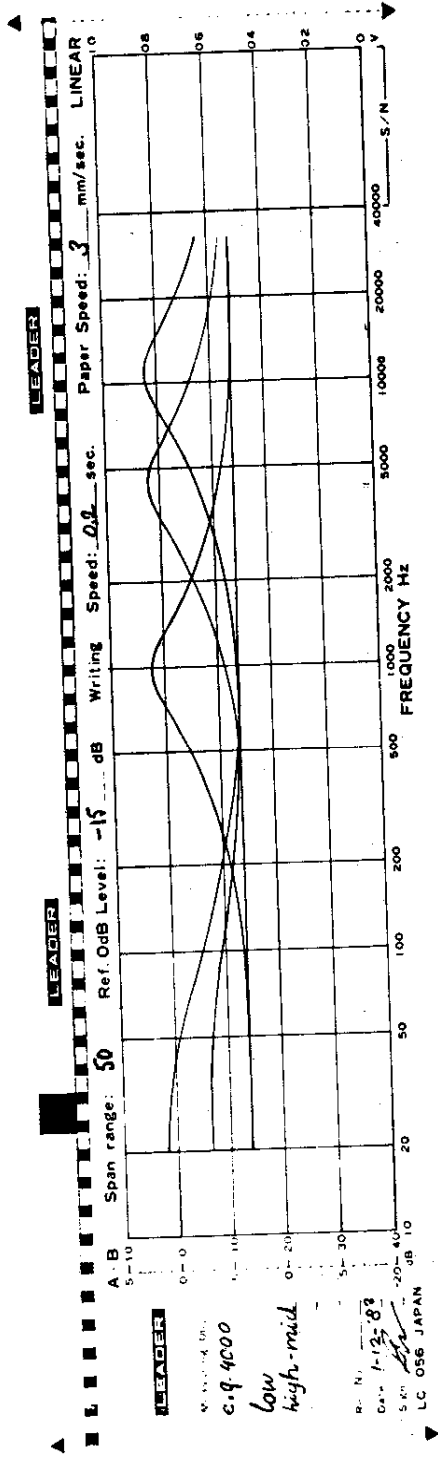
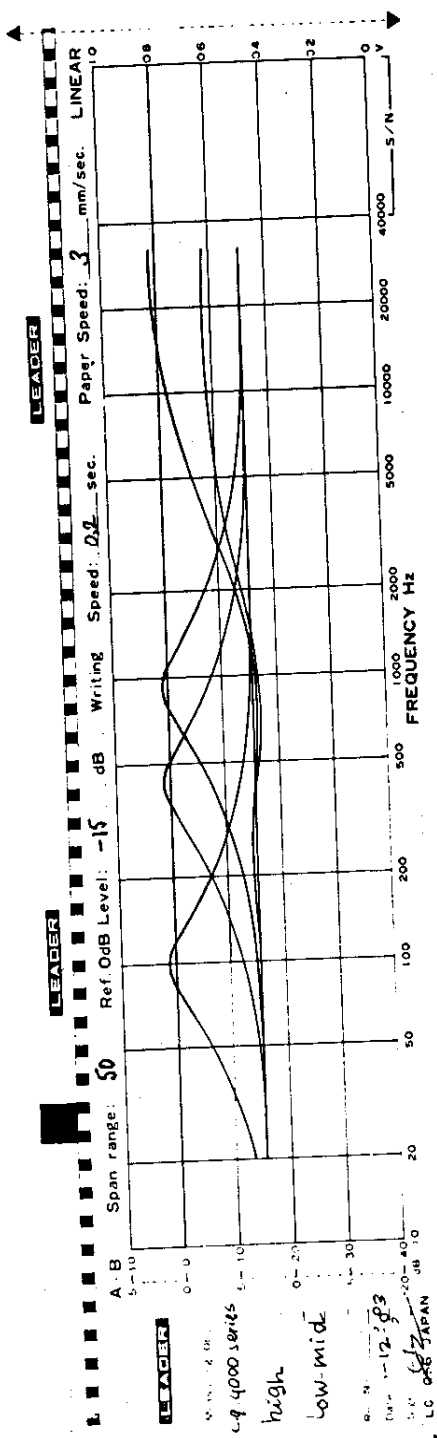
system costs

SPECIFICATIONS

Notes: Nominal operating level throughout the console is 0 dBu (0.775 v) — Nominal output level is +4 dBu/-10 dBu.

Microphone Preamplifier	electronically balanced R.F. suppressed. input impedance 2 kOhm gain +64 dB to +0 dB (44 dB variable gain with 20 dB "pad") headroom min. 40 dB. Max input +20 dB. noise -126 dB (A weighting)	frequency response referred to 0 dB at 1 kHz -0.5 dB at 20 Hz 0.5 dB at 40 kHz -3dB at 110 kHz Harmonic distortion with -20 dBu input 0 dBu output 0.0084% at 50 Hz 0.0081% at 1 kHz 0.0095% at 10 kHz with -20 dBu input +20 dBu output 0.0086% at 50 Hz 0.006 % at 1 kHz 0.018 % at 10 kHz
Line/Remix Amplifier	input impedance 10 kOhm gain from -10 dBu to infinity headroom 22 dB Equivalent input noise -96.5 dB (20—20,000 Hz) frequency response referred to 0 dB at 1 kHz -0.5 dB at 8 Hz -0.5 dB at 140 kHz -3 dB at 400 kHz	Harmonic distortion 0 dBu output 0.0074% at 50 Hz 0.0024% at 1 kHz 0.0058% at 10 kHz +20 dBu output 0.0074% at 50 Hz 0.0016% at 1 kHz 0.0048% at 10 kHz
Equalizer Section	±16 dB at 12 kHz ±16 dB from 1 kHz to 11 kHz with Q factor 1.5 ±16 dB from 100 Hz to 1 kHz with Q factor 1.5 ±16 dB at 60 Hz high pass 100 Hz slope 9 dB per octave	distortion all filters unity gain all filters +16 dB 0.0074% at 50 Hz 0.0062% at 1 kHz 0.013 % at 10 kHz 0.0017% at 50 Hz 0.008 % at 1 kHz 0.0016% at 10 kHz
Overall Performance	sync/effect input impedance 10 kOhm sync sens. +4 dBu/-10 dBu. Effect sens 0 dBu. Output impedance 100 ohm on all outputs max output +22 dB into 1 kOhm and above	
Record Mode	Test condition: One channel, assigned to and from groupbuss output, microphone input loaded with a 150 ohm source, mic preamp set for 30 dB gain group output +4 dBu frequency response referred to 0 dB at 1kHz -0.5 dB at 20 Hz and 20 kHz	distortion 0.017 % at 50 Hz 0.0094% at 1 kHz 0.052 % at 10 kHz noise -84 dBu below +4 dBu output (20—20,000 Hz)
Mix Mode	frequency response -0.5 dB at 17 Hz from line inputs to stereo mix buss outputs ref to 0 dB at 1 kHz -0.5 dB at 40 kHz -3 dB at 135 kHz distortion no more than 0.009% at 1kHz headroom +22 dB, output amp +18 dB	noise -84 dB below +4 dBu (20—20,000 Hz) measured at the stereo buss outputs with stereo master fader at max. all channel faders at full attenuation panpots at their center positions -83 dB below +4 dBu (20—20,000 Hz) with one channel fader at unity gain
Crosstalk	Record mode Direct Assign between two channels both at 30 dB gain +4 dBu out of channel 1. 150 ohm source on channel 2 input.	Crosstalk on channel 2 (referred to +4 dBu) 100 Hz better than -88 dB 1 kHz better than -90 dB 10 kHz better than -74 dB
Mix Mode	Channel 1 is fed with +4 dBu, fader at unity panned to left. Stereo master fader at maximum. Channel 2 is terminated with a 20 ohm source. Fader at unity, panned to right stereo master.	Crosstalk on right master output. 100 Hz better than -77 dB 1 kHz better than -70 dB 10 kHz better than -63 dB

Typical equalizer and filter curves



HANDLEIDING
SERIES 4000

nederlands

PAN POT-

Deze knop bepaald per kanaal de plaats van het signaal in het stereo beeld. Dat is van volledig links/rechts tot elke positie ertussen. Het signaal wordt dus verdeeld tussen de even en oneven subgroepen alsmede de links/rechts masteruitgangen. Wanneer de pan pot centraal staat wordt het signaal 4,5 dB verzwakt.

MONITOR SECTIE-

De monitor sectie is wit. Het vergemakkelijkt de bediening en maakt het paneel overzichtelijker. De volledige monitoring in een kanaal wordt door deze sectie geregeld.

SYNC-

De sync-schakelaar in de monitorsectie bepaald het opnemen cq weergeven van de meersporen recorder in de monitorsectie. Wanneer de schakelaar ingedrukt is geeft dit aan, dat de monitor sectie in het kanaal automatisch wordt geschakeld van de ingang naar de uitgang van de recorder.

EFFECT-

De effect-schakelaar stelt U in staat de monitorsectie als effect return te gebruiken. Hierdoor heeft U net zoveel effect returns als de tafel kanalen heeft.

De effect ingangen vindt U op de achterzijde van de mengtafel.

PFL en MUTE (monitor)

Via de pfl schakelaar luistert U vóór de fader naar het signaal dat komt vanaf de kanaalfader of van de meersporen recorder, alsmede de effect ingang. Deze pfl is auto-type, dat betekent dat de pfl automatisch de stereomaster van de monitor afschakelt en deze vervangt door het gekozen kanaal.

De mute toets onderbreekt het signaal, komende van de multitrack sync of effect inputs. De pfl wordt niet door de mute beïnvloed.

FADER MONITOR-

In de monitor sectie is een kleine, 58 mm, carbontrack fader gemonteerd. U heeft 10 dB versterking ter beschikking in de versterker die na de monitorfader volgt.

EQUALIZERS-

De equalizer van de series 4000 is niet gecompliceerd maar wel uitermate effectief. De signaalweg is minimaal waardoor een uitstekende signaal ruis verhouding verkregen wordt. De viervoudige equalizer omvat het hele audiospectrum. De laag cq hoogsectie heeft zijn kantelpunten op resp. 60 Hz en 12 kHz. De high-mid toonregeling loopt van 1 tot 10 kHz terwijl de low-mid een bereik heeft van 100 Hz tot 1 kHz. De kantelpunten zijn zeer muzikaal ontworpen; ze zullen U verrassen!

Mocht extra toonregeling nodig zijn: een insertie punt is gemonteerd direct na de toonregelsectie. De gehele toonregeling op een kanaal kan d.m.v. een bypass-schakelaar overbrugd worden. Een led geeft aan of zij al dan niet is ingeschakeld.

AUX-

De series 4000 heeft in totaal 6 effectsends te bieden welke ruim genoeg zijn voor de meest uitgebreide remixsessies. Ze zijn per paar pre/post de monitor fader schakelbaar. Wanneer de aux-to-channel wordt ingedrukt zijn de effectsends pre-post de kanaalfader schakelbaar. Staat deze schakelaar niet ingedrukt dan is het mogelijk pre/post de monitorfader een signaal aan de muzikanten in de studio aan te bieden. (=foldback) Mede is het mogelijk een effectapparaat aan te sturen voor of na het signaal van de multitrack recorder.

AUX-TO-CHANNEL-

Deze schakeling zorgt ervoor dat alle aux sends pre/post de kanaalfader schakelbaar zijn, iets wat tijdens de remix-sessie noodzakelijk is.

SUBGROUPING-

Het maken van subgroepen in de series 4000 gebeurt op een vrij onorthodoxe manier en verlangt een andere manier van denken van de technicus. Het basisidee is om alléén daar subgroepen te hebben waar men ze ook nodig heeft. Dit betekent dat het mogelijk is op ieder gewenst kanaal een subgroep te vormen. D&R noemt dit FSS; Floating Subgroup System! Se series 4000 heeft 4 subgroep versterkers. Dat is voldoende omdat de subgroepen dus overal inzetbaar zijn. U kunt de subgroepen naar de ingangen maar ook naar de uitgangen overal in het mengpaneel schakelen. De routing van het kanaal wordt verder beschreven onder het hoofdstuk 'Meerdere Signalen op een of twee Sporen'. Dit zwevende subgroep systeem bespaart erg veel schakelaars en andere componenten vergeleken met andere in-line mengtafels. De bedrijfszekerheid wordt hierdoor allen maar vergroot. Uiteraard is het mogelijk om naast de subgroepen de mastersectie gelijktijdig aan te sturen.

BESCHRIJVING VAN DE BEDIENINGSORGANEN:

LED BAR-

De 11 segments led bar (de onderste led geeft aan of de tafel is ingeschakeld) is een peak led bar die zowel positieve als negatieve peaken aangeeft; iets wat absoluut noodzakelijk is in moderne studietechnieken. De level calibratie is instelbaar aan de achterzijde van het kanaal. De led bar geeft de niveaus van alle signalen weer welke vóór het insertiepunt van de monitorsectie de tafel binnenkomen. Dat zijn dus alle signalen die U kunt beluisteren via de monitor pfl. Dit kunnen zijn: de multitrack input, de multitrack-sync output, de multitrack remix of de effect-input. Het is ook mogelijk de monitor sectie als effectinput te gebruiken zonder dat de led bar wordt losgekoppeld van het recordersignaal. Patch in dat geval niet in de effectinput maar in de monitor insertie jack. Het blijft dan mogelijk het niveau van het recordersignaal af te lezen.

MIC-

Onder de led bar vindt U de bedieningsorganen van de microfoon ingang. De bovenste schakelaar geeft de mogelijkheid de 48 V phantomvoeding per kanaal aan/uit te schakelen. Hieronder bevindt zich de -20 dB schakeling welke gebruikt kan worden om oversturing van het microfoonkanaal te voorkomen.

LINE-

De line schakelaar schakelt de microfooningang om naar line-gevoeligheid en impedantie. (resp. -10 dBu/+20 dBu, 10 kOhm)

REMIX-

In feite is de remix-schakelaar niets anders dan een line-schakelaar met een prioriteit boven de normale line ingang. De remix input is gecombineerd met de sync-input op de achterzijde van het paneel.

GAIN-

De gain regelaar regelt de mate van versterking of verzwakking van het aangeboden signaal. De microfoongevoeligheid reikt van -20 dB tot -64 dB, met een uitsturingsmarge van meer dan 40 dB.

PHASE-

De phase omkeerschakelaar werkt zowel op de microfoon- als de op de line-input.

HIGH PASS FILTER-

Het laag af filter heeft een vaste frequentie die ligt op 100 Hz. De afval van het filter is 9 dB per octaaf. Ongewenst laag kan op deze manier effectief worden weggefilterd.

Wij danken U hartelijk voor Uw keuze en het vertrouwen dat U in ons produkt stelt. De D&R series 4000 mengtafel is ontworpen door en voor professionele gebruikers. Het geeft U een uniek in-line concept in handen met een enorme flexibiliteit. Onze reeds twaalf jaar lange ervaring in het ontwikkelen en produceren van geluidsmengtafels resulteerde in een betrouwbare en bedrijfszekere mengtafel. Lees de gebruiksaanwijzing eerst aandachtig door om het volle profijt uit Uw mengtafel te halen. Schroom niet om de aangewezen mogelijkheden te gebruiken; de mengtafel is er voor ontworpen!

Een beknopte lijst van de 4000 features:

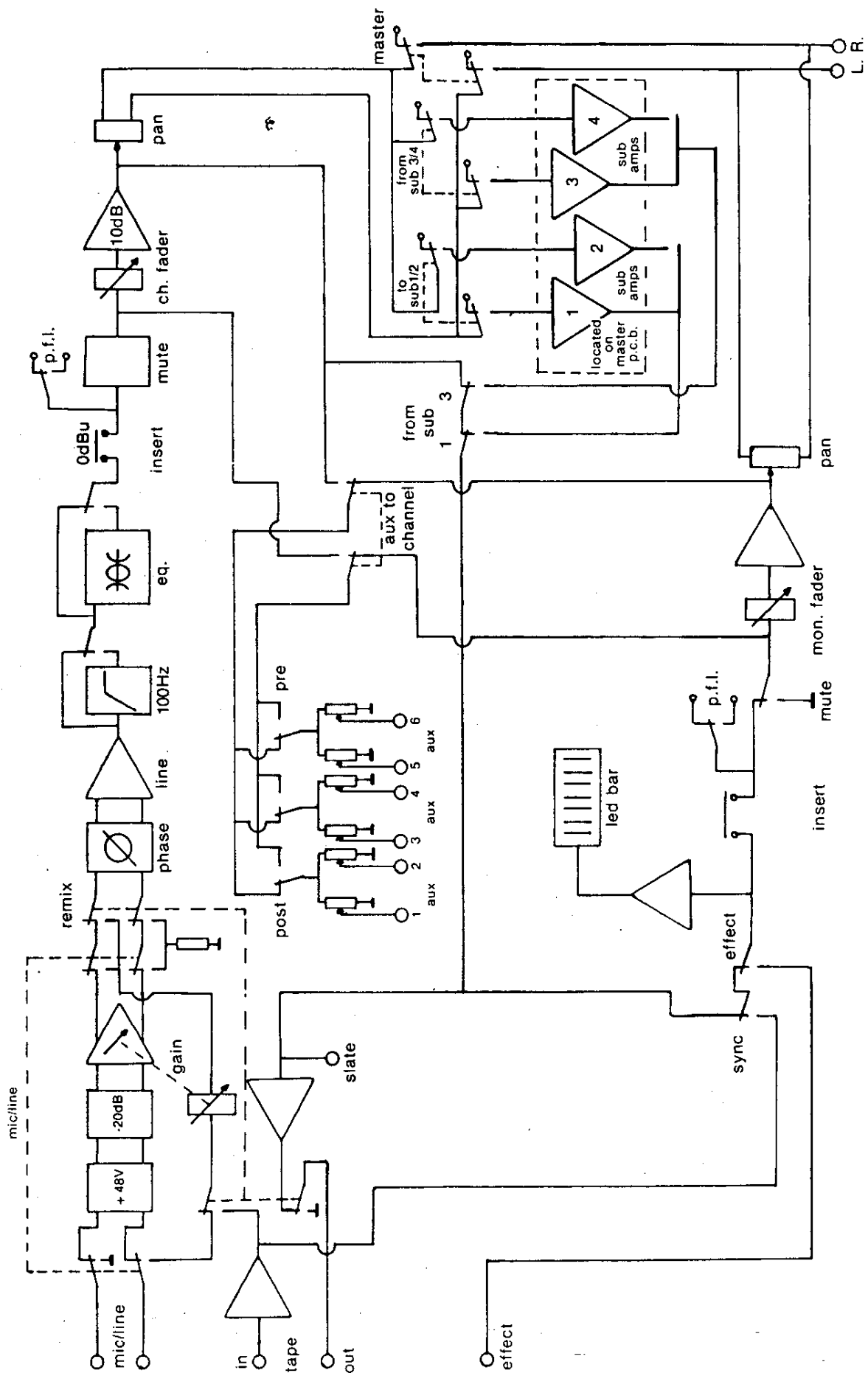
- 11 segment led-bar per kanaal
- 48 V phantom, per kanaal aan/uit schakelbaar
- phase reverse voor zowel mic- als line ingang per kanaal
- extreem ruisarme mikrofoonvoorversterkers
- gecombineerde sync- remix inputs op +4 dBu/-10 dBV
- 100 Hz high pass filter
- 4 bands sweep equalizer
- 6 aux sends pre/post fader schakelbaar
- floating subgroups
- sync- en effectinputs per kanaal waardoor een dubbel aantal kanalen gemixed kan worden.
- monitor mute en p.f.l.
- kanaal mute en p.f.l.
- 100 mm kanaal fader, 60 mm monitor fader
- 2 inserts per kanaal
- multitrack outputs op +4 dBu of -10 dBV
- master sectie met 25 segments led-bar en phasemeter
- 1 kHz line up toongenerator
- talkback met ingebouwde electret-mikrofoon
- communicatie systeem
- 6 master aux sends met afl afuistering
- uitgebreide monitor sectie: twee paar monitors schakelbaar, mono en mute schakelaars.
- twee stereo master recorders kunnen worden afgeluisterd (+4/-10 mogelijk)- 64 jacks modulair patchpanel
- alle connectors via xlr of stereo steek (6,3 mm)

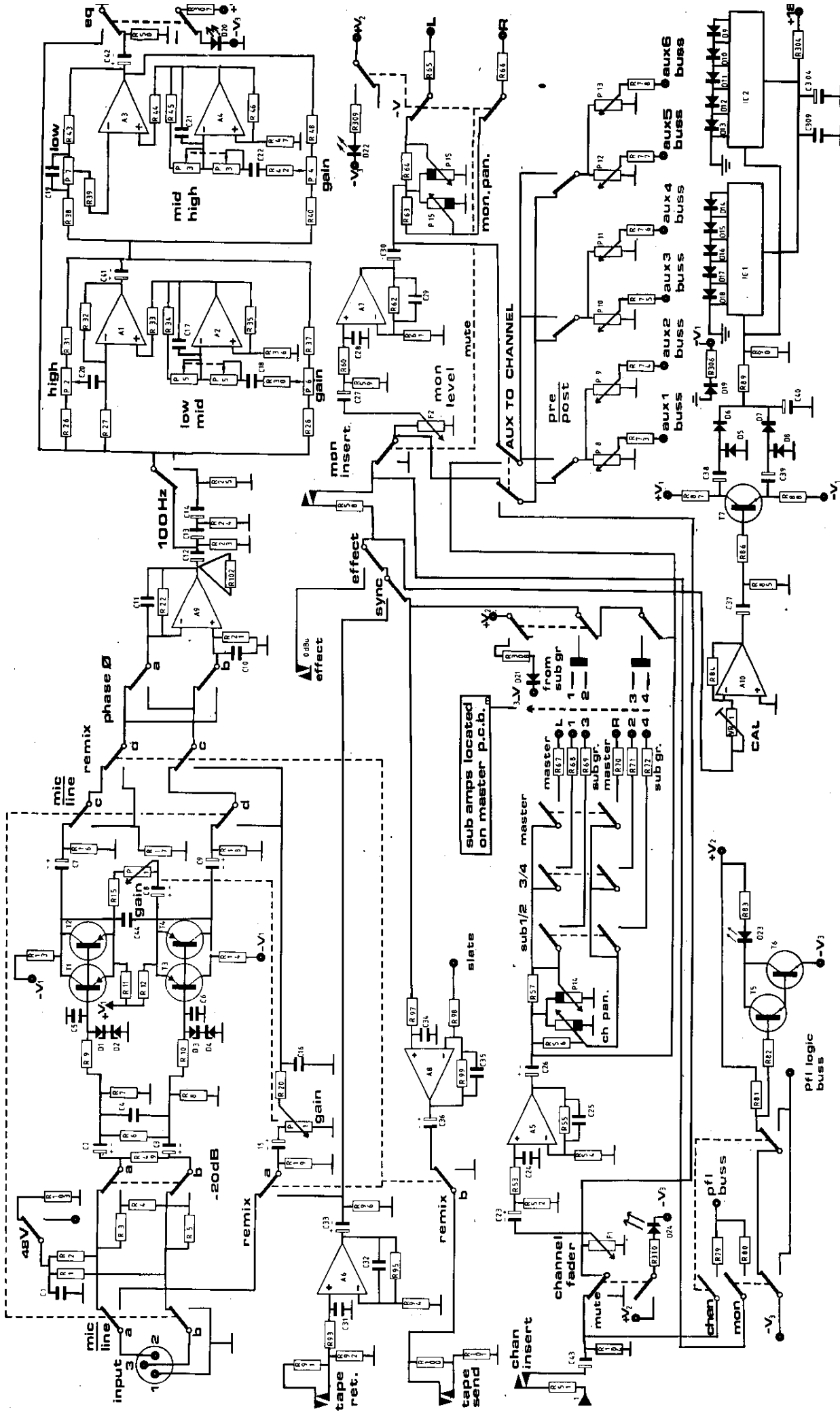
"4000 SERIES"

SERVICE MANUAL

DNR

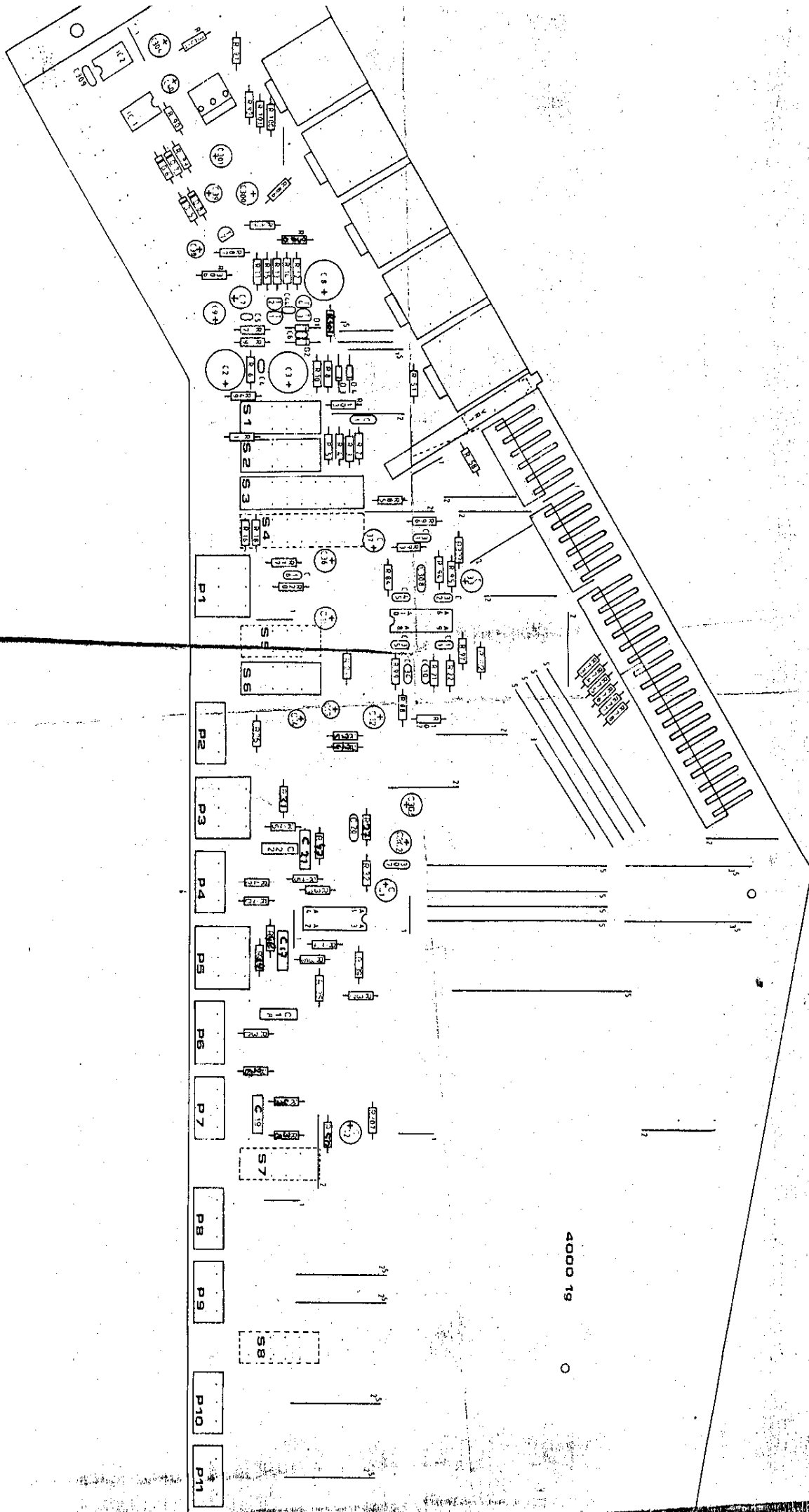
In/Output channel 4000 series



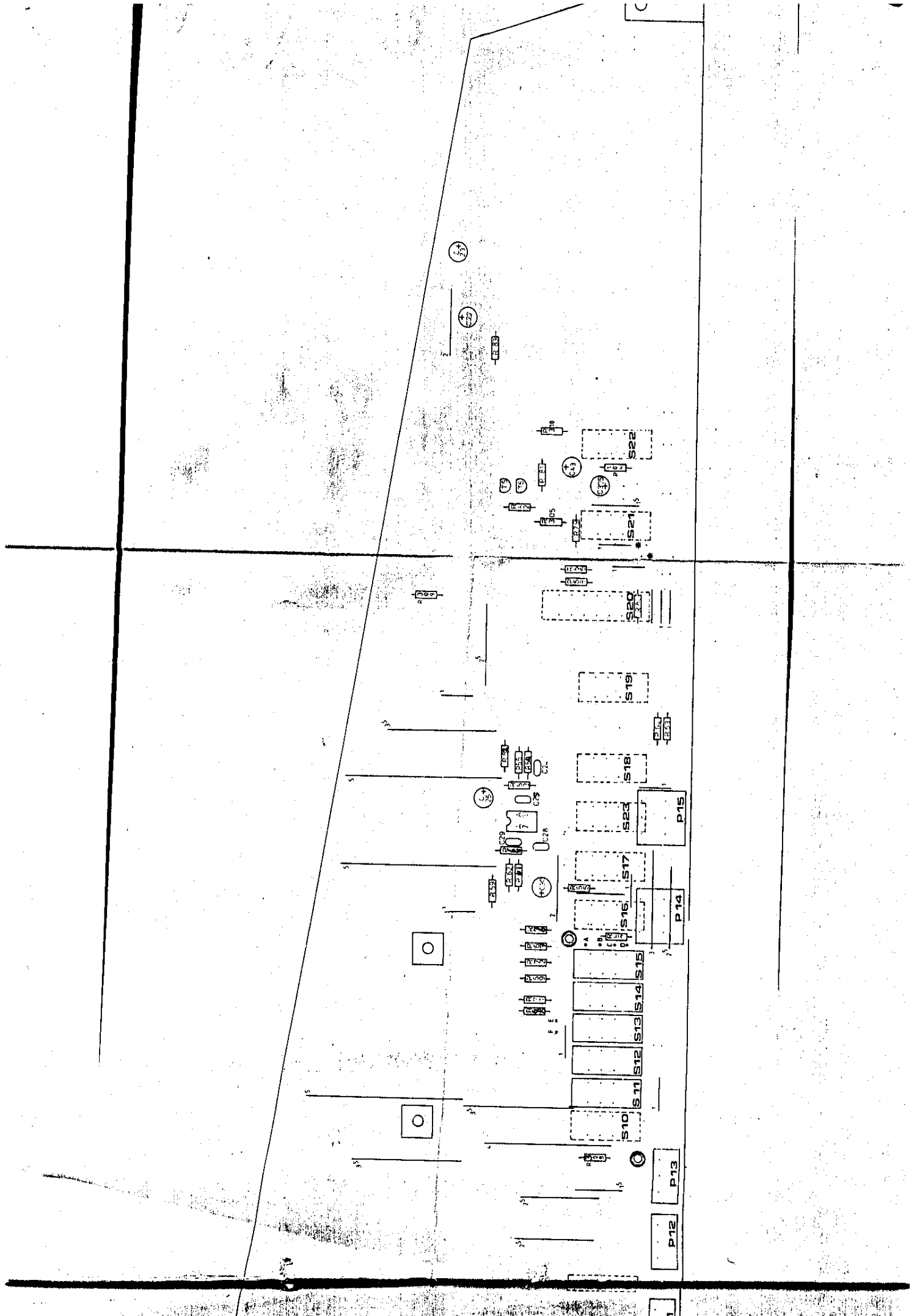


4000-1C
 M. SCHOUTEN
 23-1-84

4000-1A
 change in molex
 4000-1B
 added c13, p102, p104
 12345678
 10dBV on tip
 sleeves ground



4000 19



productie en ontwikkeling van
geluidsmengpanelen en accessoires

R & D department

```
printindex : 9
```

7

mic	R49	10 k	5%	0741
eq.	R50	47 k	5%	0749
CH.ins	R51	100 E	5%	0717
CH.fader	R52	47 k	5%	0749
	R53	22 k	5%	0745
	R54	10 k	5%	0741
	R55	22 k	5%	0745
CH.pan	R56	3 k 9	5%	0736
	R57	3 k 9	5%	0736
mon ins	R58	100 E	5%	0717
m.fader	R59	100 k	5%	0753
	R60	22 k	5%	0745
	R61	10 k	5%	0741
	R62	22 k	5%	0745
m. pan	R63	3 k 9	5%	0736
	R64	3 k 9	5%	0736
m.buss	R65	10 k	5%	0741
	R66	10 k	5%	0741
CH.bus	R67	10 k	5%	0741
	R68	10 k	5%	0741
	R69	10 k	5%	0741
	R70	10 k	5%	0741
	R71	10 k	5%	0741
	R72	10 k	5%	0741
aux bus	R73	47 k	5%	0749
	R74	47 k	5%	0749
	R75	47 k	5%	0749
	R76	47 k	5%	0749
	R77	47 k	5%	0749
	R78	47 k	5%	0749
pfl bus	R79	10 k	5%	0741
	R80	10 k	5%	0741
logic	R81(not in 1d)	330 k	5%	0759
	R82(not in 1d)	22 k	5%	0745
	R83	3 k 3	5%	0735
ledbar	R84	470 k	5%	0761
	R85	100 k	5%	0753
	R86	1 k 2	5%	0730
	R87	1 k 2	5%	0730
	R88	1 k 2	5%	0730
	R89	220 k	5%	0757
tape r	R90	68 k	5%	0751
	R91	28 k 7	1%	0861
	R92	10 k	5%	0741
	R93	1 k 0	5%	0729
	R94	1 k 5	5%	0731
	R95	2 k 2	5%	0733
	R96	47 k	5%	0749
tape s	R97	1 k 0	5%	0729
	R98	47 k	5%	0749
	R99	27 k 4	1%	0860
	R100	2 k 00	1%	0835
	R101	680 E	5%	0727
100 hz	R102(added in 1c)	100 E	5%	0717
phant	R103(added in 1b)	22 k	5%	0745
CH.ins	R104(added in 1d)	47 k	5%	0749
supply	R300 (+V1)	10 E	5%	0705
	R301 (-V1)	10 E	5%	0705
	R302 (+V2)	10 E	5%	0705
	R303 (-V2)	10 E	5%	0705
	R304 (+V3)	10 E	5%	0705
	R305 (-V3)	10 E	5%	0705
on	R306	1 k 0	5%	0729
eq.	R307	3 k 3	5%	0735
fr.sub	R308	3 k 3	5%	0735
m.mute	R309	3 k 3	5%	0735
CH.mute	R310	3 k 3	5%	0735

phant	C1	0.1/63	ker	0241
mic	C2	47/63	elco	0289
	C3	47/63	elco	0289
	C4	270 p	ker	0230
	C5	----	---	----
	C6	----	---	----
	C7	47/25	elco	0287
	C8	220/6.3-25	elco	0301
	C9	47/25	elco	0287
line	C10	10 p	ker	0213
	C11	10 p	ker	0213
	C12	47/25	elco	0287
100 Hz	C13	2.2/63	elco	0280
	C14	1763	elco	0279
line	C15	47/25	elco	0287
	C16	270 p	ker	0230
eq.	C17	0.015	poly	0254
	C18	0.015	poly	0254
	C19	0.047	poly	0258
	C20	680 p	poly R5/R7.5	0245
	C21	1500p	poly	0247
	C22	1500p	poly	0247
CH.fader	C23	47/25	elco	0287
	C24	15 p	ker	0215
	C25	8 p 2	ker	0212
	C26	47/25	elco	0287
m fader	C27	47/25	elco	0287
	C28	15 p	ker	0215
	C29	4 p 7	ker	0209
	C30	47/25	elco	0287
tape r	C31	120 p	ker	0226
	C32	18 p	ker	0216
	C33	47/25	elco	0287
tape s	C34	270 p	ker	0230
	C35	10 p	ker	0213
	C36	47/25	elco	0287
ledbar	C37	47/25	elco	0287
	C38	2.2/63	elco	0280
	C39	2.2/63	elco	0280
	C40	2.2/63	elco	0280
eq.	C41	47/25	elco	0287
	C42	47/25	elco	0287
CH.ins	C43	47/25	elco	0287
mic	C44	----	---	----
ledbar	C45 added in 1g	4 p 7	ker	0209
supply	C300 (+V1)	47/25	elco	0287
	C301 (-V1)	47/25	elco	0287
	C302 (+V2)	47/25	elco	0287
	C303 (-V2)	47/25	elco	0287
	C304 (+V3)	47/25	elco	0287
	C305 (-V3)	47/25	elco	0287
	C306	----	---	----
	C307 (+V2)	0.1/63	ker	0241
	C308 (-V2)	0.1/63	ker	0241
	C309 (+V3)	0.1/63	ker	0241
mic	T1 - T4	BC 560/416	PNP	0327
logic	T5+T6 (not in 1d)	BC 546	NPN	0328
ledbar	T7	BC 546	NPN	0328
eq.	A1 - A4	TL074	biFET	0305
CH+mon	A5+A7	TL072	biFET	0304
tape r	A6+A8+A9+A10	TL074	biFET	0305
ledbar	IC1	UA267	5 segm.LEDdr	0312
	IC2	UA257	5 segm.LEDdr	0311
mic	D1 - D4 (not in 1d)	5V6	zenerdiode	0351

	D9+D10+D11	LED5x2mm	rood	0390
	D12 - D18	LED5x2	groen	0389
	D19 - D24	LED5x2	groen	0389
gain	F1	10kCB	12.5mm	0885
high	P2	100kA	12.5mm	0888
sweep h	P3	2x100kC	12.5mm	0891
gain h	P4	4k7A	12.5mm	0882
sweep l	P5	2x100kC	12.5mm	0891
gain l	P6	4k7A	12.5mm	0882
low	P7	100kA	12.5mm	0888
aux 1-6	P8 - P13	47 kB	12.5mm	0887
mon pan	P14	2x10kA CIV RT	12.5mm	901 0882
CH.pan	P15	2x10kA	12.5mm	0883

ledbar	VR1	1 M	inst.pot gr 162	0150
mon	F1	10 kB PHIL/RADIOHM	58 mm mono	0130
chan	F2	10 kB ALPS LUXE	100 mm mono	0097

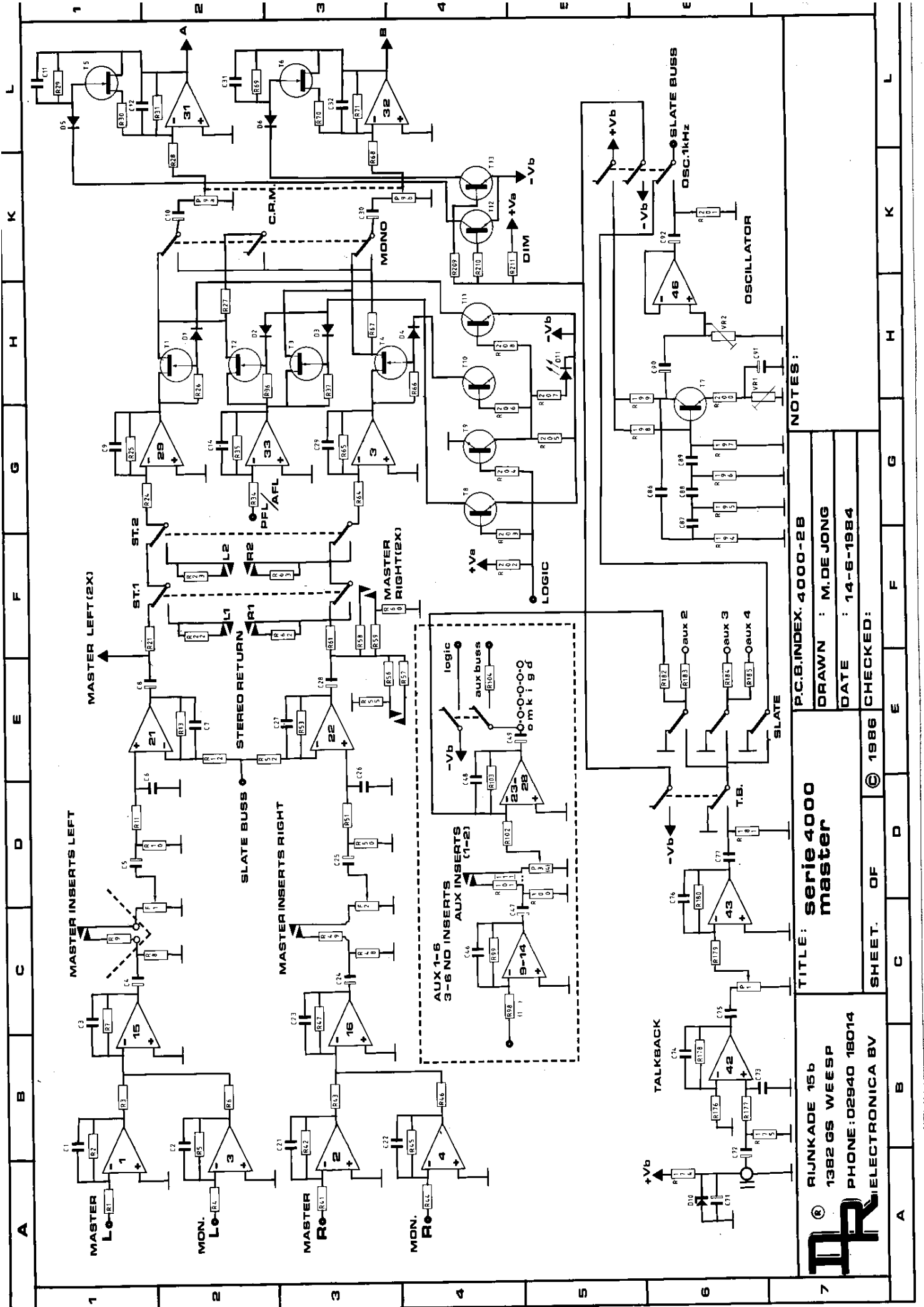
+48	S1	FoxN2UEE	2xom	0400
-20 dB	S2	FoxN2UEE	2xom	0400
line	S3	FoxN4UEE	4xom	0401
remix	S4	FoxN4UEE	4xom	0401
	S5 - S19	FoxN2UEE	2xom	0400
m mute	S20	FoxN4UEE	4xom	0401
CH.pfl	S21	FoxN2UEE	2xom	0400
CH.mute	S22	FoxN2UEE	2xom	0400
sub mst	S23 (added in 1g)	FoxN2UEE	2xom	0400

J1	XLR	Chass pla fem	0424
J2 - J6	Cliff break	plastic	0432

J1	XLR	Chass pla fem	0424
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Pos.	Artikelcode	Omschrijving	Netto hoeveelheid	Ehd	Ingangs datum	Verval datum	Lengte [mm]	Breedte [mm]	Aant eenh	Afval [%]	Mag	Bew.	Ph.
Maakartikel : 20850384 Print bestukt 4000-1 (mono) Stukl. op basis van: 1 st													
110	10400209	Condensator ker 4p7 R2.5	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
120	10400212	Condensator ker 8p2 R2.5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
130	10400213	Condensator ker 10p R2.5	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
140	10400215	Condensator ker 15p R2.5	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
150	10400216	Condensator ker 18p R2.5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
880	10400223	Condensator ker 68p R2.5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
160	10400226	Condensator ker 120p R2.5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
170	10400230	Condensator ker 270p R2.5	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
180	10400236	Condensator ker 1000p R2.5	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
190	10401241	Condensator ker 100nF/32V R5.0	4.0000	st	08-01-91	- -	0.00	0.00	0	0	HGO	0	nee
220	10400247	Condensator poly 1n5 R7.5	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
230	10400254	Condensator poly 15n R7.5	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
240	10400258	Condensator poly 47n R7.5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
210	10401245	Condensator poly 680p R5.0	1.0000	st	10-01-91	- -	0.00	0.00	0	0	HGO	0	nee
350	10250341	Diode AA118 / OA95 (germanium)	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
860	11650961	Draadbrug 1.0 cm (0.6mm)	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
20	11650075	Draadbrug 4.0 cm (0.6mm)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
380	11650360	Draadbrug 5.0 cm (0.6mm)	12.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
250	10400279	Elco 1uF / 50V radiaal R5.0	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
270	10400287	Elco 47uF / 25V radiaal R5.0	20.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
280	10400289	Elco 47uF / 63V radiaal R5.0	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
260	10400280	Elco 2.2uF / 50V radiaal R5.0	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
200	10400290	Elco 220uF / 25V radiaal R5.0	1.0000	st	10-01-91	- -	0.00	0.00	0	0	HGO	0	nee
430	10600449	Header haaks 6p (raster 3.96)	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
440	10600453	Header haaks 12p (raster 3.96)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
450	10600474	Header recht 3p (raster 3.96)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
290	10250304	Ic TL-072 CP TI (dual-opamp)	1.0000	st	01-01-90	23-11-93	0.00	0.00	0	0	HGO	0	nee
291	10250304	Ic TL-072 CP TI (dual-opamp)	1.0000	st	08-03-94	- -	0.00	0.00	0	0	HGO	0	nee
300	10250305	Ic TL-074 CN TI (quad-opamp)	2.0000	st	01-01-90	23-11-93	0.00	0.00	0	0	HGO	0	nee
301	10250305	Ic TL-074 CN TI (quad-opamp)	2.0000	st	08-03-94	- -	0.00	0.00	0	0	HGO	0	nee
310	10250311	Ic UA-257 (led-driver)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
320	10250312	Ic UA-267 (led-driver)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
390	10600394	Ic-voet 8 pins (vork-contact)	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
400	10600395	Ic-voet 14 pins (vork-contact)	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
80	10300162	Instelpot 10-turn 1M lang	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
410	10600432	Jack chassis break	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
870	10300878	Potm.12 1x 10KA <i>mid</i> cn lin	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
820	10300885	Potm.12 1x 10KC/1x 10KB alog	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
830	10300887	Potm.12 1x 47KB log	6.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
840	10300888	Potm.12 1x100KA lin	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
810	10300889	Potm.12 1x100KA 10KA cn lin	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
850	10300891	Potm.12 2x100KC alog	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
480	10200550	Print 4000-1i (mono-channel)	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
90	10550400	Schakelaar Alps 2p-ns (2 x om)	18.0000	st	08-08-94	- -	0.00	0.00	0	0	HGO	0	nee
100	10550178	Schakelaar FOX 4 x om (ns)	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
340	10250328	Transistor BC-546B (nnp)	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
330	10250327	Transistor BC-560B Phil taped	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
30	11350120	Weerstand 1/4W 1.0 cm OE	22.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
40	11350121	Weerstand 1/4W 1.5 cm OE	6.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
50	11350122	Weerstand 1/4W 2.0 cm OE	13.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
60	11350123	Weerstand 1/4W 2.5 cm OE	8.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
70	11350124	Weerstand 1/4W 3.0 cm OE	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
10	11350074	Weerstand 1/4W 3.5 cm OE	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	ja
760	10350835	Weerstand 1% 1/4W 2k00	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
770	10350846	Weerstand 1% 1/4W 6k81	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
780	10350860	Weerstand 1% 1/4W 27k4	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
790	10350861	Weerstand 1% 1/4W 28k7	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee

Pos.	Artikelcode	Omschrijving	Netto hoeveelheid	Ehd	Ingangs datum	Verval datum	Lengte [mm]	Breedte [mm]	Aant eenh	Afval [%]	Mag	Bew.	Ph.
Maakartikel :		20850384 Print bestukt 4000-1 (mono)	Stukl. op basis van:				1 st						
490	10350705	Weerstand 5% 1/4W 10E	8.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
500	10350709	Weerstand 5% 1/4W 22E	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
890	10350717	Weerstand 5% 1/4W 100E	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
520	10350721	Weerstand 5% 1/4W 220E	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
530	10350727	Weerstand 5% 1/4W 680E	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
540	10350729	Weerstand 5% 1/4W 1k0	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
550	10350730	Weerstand 5% 1/4W 1k2	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
560	10350731	Weerstand 5% 1/4W 1k5	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
570	10350732	Weerstand 5% 1/4W 1k8	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
580	10350733	Weerstand 5% 1/4W 2k2	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
590	10350735	Weerstand 5% 1/4W 3k3	5.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
600	10350736	Weerstand 5% 1/4W 3k9	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
610	10350737	Weerstand 5% 1/4W 4k7	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
620	10350739	Weerstand 5% 1/4W 6k8	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
630	10350740	Weerstand 5% 1/4W 8k2	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
640	10350741	Weerstand 5% 1/4W 10k	17.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
650	10350742	Weerstand 5% 1/4W 12k	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
660	10350743	Weerstand 5% 1/4W 15k	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
670	10350745	Weerstand 5% 1/4W 22k	8.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
680	10350749	Weerstand 5% 1/4W 47k	16.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
690	10350751	Weerstand 5% 1/4W 68k	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
700	10350753	Weerstand 5% 1/4W 100k	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
710	10350757	Weerstand 5% 1/4W 220k	3.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
720	10350759	Weerstand 5% 1/4W 330k	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
730	10350761	Weerstand 5% 1/4W 470k	1.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
740	10350801	Weerstand 5% 1/4W MF 4k7	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
750	10350802	Weerstand 5% 1/4W MF 8k2	2.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee
370	10250351	Zenerdiode 5V6 / 400mW	4.0000	st	01-01-90	- -	0.00	0.00	0	0	HGO	0	nee



NOTES:

P.C.B. INDEX: 4000-28

DRAWN : M. DE JONG

DATE : 14-6-1984

CHECKED:

TITLE: serie 4000

master

RIJKADE 15b

1382 GS WEESP

PHONE: 02940 18014

ELECTRONICA BV



A	B	C	D	E	F	G	H	K	L
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 produktie en ontwikkeling van
 geluidsmengpanelen en accessoires

R & D department

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print index:b
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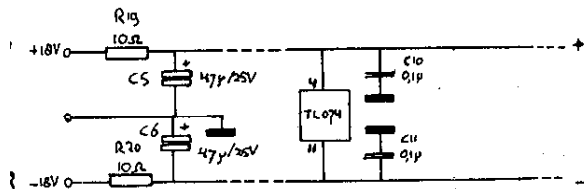
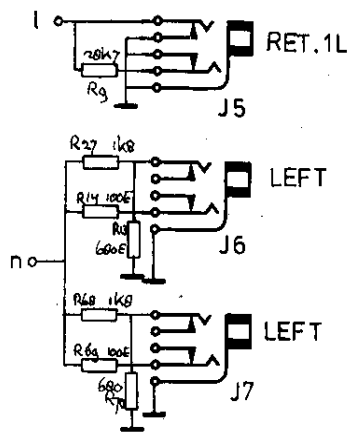
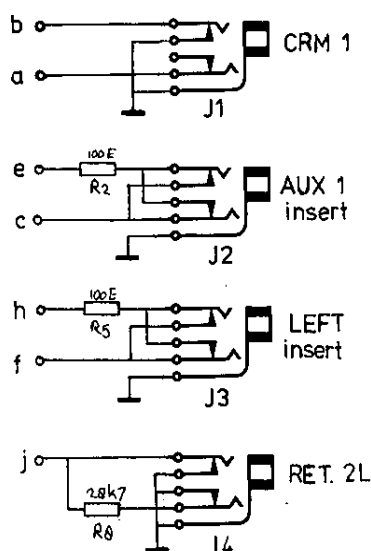
PartNr	Value	Notes	ArtNr
mstrL			
R1	33 E	5%	0711
R2	10 k	5%	0741
R3	10 k	5%	0741
R4	33 E	5%	0711
R5	10 k	5%	0741
R6	10 k	5%	0741
R7	10 k	5%	0741
R8	47 k	5%	0749
R9	on print 4000-3L		
R10	47 k	5%	0749
R11	1 k 0	5%	0729
R12	47 k	5%	0749
R13	27 k	5%	0746
R14	-----	---	-----
R15-R20	on print 4000-3L		
R21	28 k 7	1%	0861
R22-R23	on print 4000-3L		
R24	10 k	5%	0741
R25	39 k	5%	0748
R26	100 k	5%	0753
R27	2 k 2	5%	0733
R28	47 k	5%	0749
R29	100 k	5%	0753
R30	4 k 7	5%	0737
R31	47 k	5%	0749
R32	47 k	5%	0749
R33	100 E	5%	0717
pfl/af1			
R34	33 E	5%	0711
R35	15 k 8	1%	0853
R36	100 k	5%	0753
R37	100 k	5%	0753
R38-R40	-----	---	-----
mstrR			
R41	33 E	5%	0711
R42	10 k	5%	0741
R43	10 k	5%	0741
R44	33 E	5%	0711
R45	10 k	5%	0741
R46	10 k	5%	0741
R47	10 k	5%	0741
R48	47 k	5%	0749
R49	100 E	5%	0717
R50	47 k	5%	0749
R51	1 k 0	5%	0729
R52	47 k	5%	0749
R53	27 k	5%	0746
R54	-----	---	-----
R55	680 E	5%	0727
R56	1 k 8	5%	0732
R57	100 E	5%	0717
R58	100 E	5%	0717

aux5	R134	33 E	5%	0711
	R135	100 k	5%	0753
	R136	47 k	5%	0749
	R137	73 k 2	1%	0869
	R138	15 k 8	1%	0853
	R139-R141	on print 4000-3R		
aux6	R142	33 E	5%	0711
	R143	100 k	5%	0753
	R144	47 k	5%	0749
	R145	73 k 2	1%	0869
	R146	15 k 8	1%	0853
	R147-R149	on print 4000-3R		
led-L	R150-R153	-----	---	----
	R154	10 k	5%	0741
	R155	100 k	5%	0753
	R156	10 k	5%	0741
	R157	10 k 0	1%	0848
	R158	10 k 0	1%	0848
	R159	10 k 0	1%	0848
	R160	10 k 0	1%	0848
	R161	10 k 0	1%	0848
	R162	2 k 2	5%	0733
	R163	2 k 2	5%	0733
led-R	R164	10 k	5%	0741
	R165	100 k	5%	0753
	R166	10 k	5%	0741
	R167	10 k 0	1%	0848
	R168	10 k 0	1%	0848
	R169	10 k 0	1%	0848
	R170	10 k 0	1%	0848
	R171	10 k 0	1%	0848
	R172	2 k 2	5%	0733
	R173	2 k 2	5%	0733
talkbck	R174	3 k 9	5%	0736
	R175	10 k	5%	0741
	R176	560 E	5%	0726
	R177	10 k	5%	0741
	R178	56 k	5%	0750
	R179	22 k	5%	0745
	R180	1 M 0	5%	0765
	R181	47 k	5%	0741
	R182	47 k	5%	0741
	R183	47 k	5%	0741
	R184	47 k	5%	0741
comm.	R185	47 k	5%	0741
	R186	560 E	5%	0726
	R187	560 E	5%	0726
	R188	56 k	5%	0750
	R189	56 k	5%	0750
	R190	22 k	5%	0745
	R191	1 M 0	5%	0765
	R192	47 k	5%	0749
	R193	10 k	5%	0741
oscill.	R194	12 k 1	1%	0851
	R195	12 k 1	1%	0851
	R196	12 k 1	1%	0851
	R197	12 k 1	1%	0851
	R198	56 k	5%	0750
	R199	4 k 7	5%	0737
logic	R200	100 E	5%	0717
	R201	-----	---	----
	R202	15 k	5%	0743
	R203	22 k	5%	0745
	R204	22 k	5%	0745
	R205	10 k	5%	0741

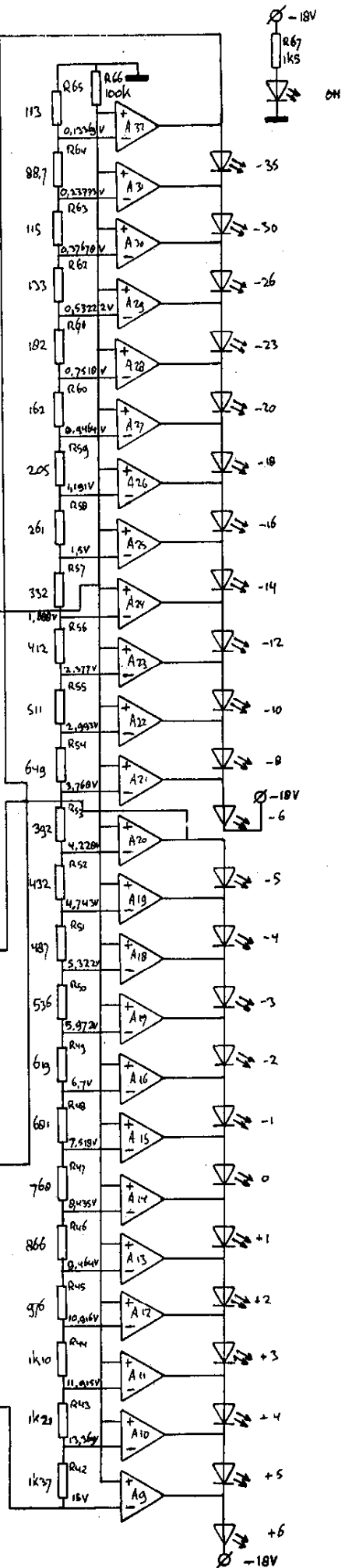
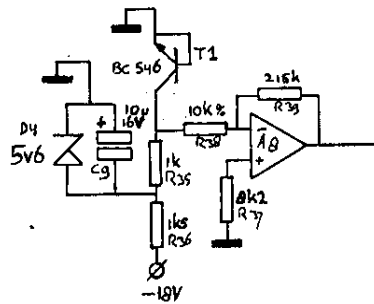
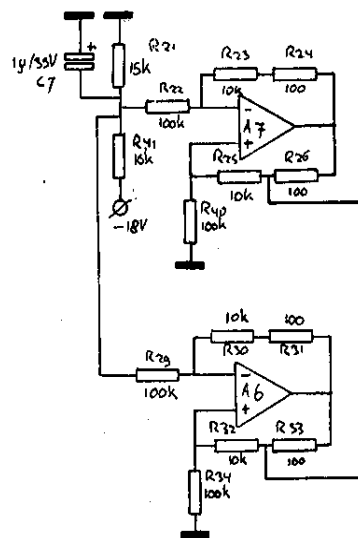
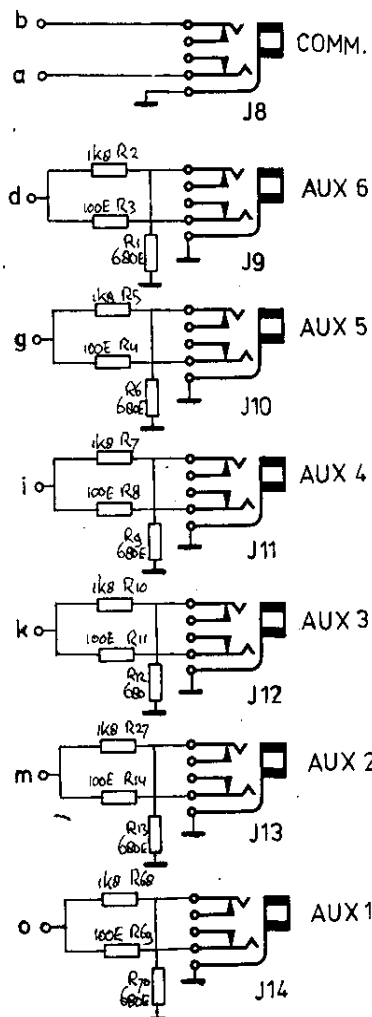
	R207	1 k 2	5%	0730
	R208	22 k	5%	0745
dim	R209	1 M 0	5%	0765
	R210	1 M 0	5%	0765
	R211	330 k	5%	0759
supply	R301 (+V1)	10 E	5%	0705
	R302 (-Va)	10 E	5%	0705
	R303 (+Vb)	10 E	5%	0705
	R304 (-Vb)	10 E	5%	0705
	R305 (+Vc)	10 E	5%	0705
	R306 (-Vc)	10 E	5%	0705
mstrL	C1	39 pF	ker	0220
	C2	39 pF	ker	0220
	C3	15 pF	ker	0215
	C4	47 /25	elco	0287
	C5	47 /25	elco	0287
	C6	270 pF	ker	0230
	C7	18 pF	ker	0216
	C8	47 /25	elco	0287
	C9	2 p 2	ker	0205
	C10	47 /25	elco	0287
	C11	470 pF	ker	0232
	C12	4 p 7	ker	0209
pfl/af1	C13	47 /25	elco	0287
	C14	39 pF	ker	0220
	C15-C20			
mstrR	C21	39 pF	ker	0220
	C22	39 pF	ker	0220
	C23	15 pF	ker	0215
	C24	47 /25	elco	0287
	C25	47 /25	elco	0287
	C26	270 pF	ker	0230
	C27	18 pF	ker	0216
	C28	47 /25	elco	0287
	C29	2 p 2	ker	0205
	C30	47 /25	elco	0287
	C31	470 pF	ker	0232
	C32	4 p 7	ker	0209
	C33	47 /25	elco	0287
sub1	C34	39 pF	ker	0220
	C35	39 pF	ker	0220
	C36	47 /25	elco	0287
sub2	C37	39 pF	ker	0220
	C38	39 pF	ker	0220
	C39	47 /25	elco	0287
sub3	C40	39 pF	ker	0220
	C41	39 pF	ker	0220
	C42	47 /25	elco	0287
sub4	C43	39 pF	ker	0220
	C44	39 pF	ker	0220
	C45	47 pF	elco	0287
aux1	C46	6 p 8	ker	0211
	C47	47 /25	elco	0287
	C48	1 p 8	ker	0204
	C49	47 /25	elco	0287
aux2	C50	6 p 8	ker	0211
	C51	47 /25	elco	0287
	C52	1 p 8	ker	0204
	C53	47 /25	elco	0287

aux3	C54	6 p 8	ker	0211
	C55	-----	---	---
	C56	1 p 8	ker	0204
	C57	47 /25	elco	0287
aux4	C58	6 p 8	ker	0211
	C59	-----	---	---
	C60	1 p 8	ker	0204
	C61	47 /25	elco	0287
aux5	C62	6 p 8	ker	0211
	C63	-----	---	---
	C64	1 p 8	ker	0204
	C65	47 /25	elco	0287
aux6	C66	6 p 8	ker	0211
	C67	-----	---	---
	C68	1 p 8	ker	0204
	C69	47 /25	elco	0287
led-L	C70	47 /25	elco	0287
talkbck	C71	47 /25	elco	0287
	C72	47 /25	elco	0287
	C73	680 pF	ker	0234
	C74	10 pF	ker	0213
	C75	0.1uF	poly	0261
	C76	4 p 7	ker	0209
	C77	0.47uF	poly	0266
	C78+C79	-----	---	---
led-R	C80	47 /25	elco	0287
comm.	C81	10 pF	ker	02133
	C82	10 pF	ker	0213
	C83	0.1uF	poly	0261
	C84	4 p 7	ker	0209
	C85	0.47uF	poly	0266
	C86	0.01uF	poly	0253
	C87	0.01uF	poly	0253
	C88	0.01u	poly	0253
	C89	0.01uF	poly	0253
	C90	47 /25	elco	0287
	C91	47 /25	elco	0287
	C92	47 /25	elco	0287
supply	C301 (+V1)	220 /25	elco	0290
	C302 (-V1)	220 /25	elco	0290
	C303 (+V1/A1-A20)	0.1uF	ker	0241
	C304 (-V1/A1-A20)	0.1uF	ker	0241
	C305 (+V1/A21+A22)	0.1uF	ker	0241
	C306 (-V1/A21+A22)	0.1uF	ker	0241
	C307 (+V1/A...-A...)	0.1uF	ker	0241
	C308 (-V1/A...-A...)	0.1uF	ker	0241
	C309 (+V2)	470 /40	elco axial	0295
	C310 (-V2)	470 /40	elco axial	0295
	C311 (+V2)	0.1uF	ker	0241
	C312 (+V2)	0.1uF	ker	0241
	C313 (+V3)	0.1uF	ker	0241
	C314 (-V3)	0.1uF	ker	0241
mstrL	T1	2N 5638	FET	0338
pfl/afl	T2	2N 5638	FET	0338
	T3	2N 5638	FET	0338
mstrR	T4	2N 5638	FET	0338
dim	T5	2N 5638	FET	0338
	T6	2N 5638	FET	0338
oscill.	T7	BC 546	NPN	0328
logic	T8	BC 546	NPN	0328
	T9	BC 560/BC 416	PNP	0327
	T10	BC 546	NPN	0328
	T11	BC 546	NPN	0328
dim	T12	BC 546	NPN	0328
	T13	BC 546	NPN	0328

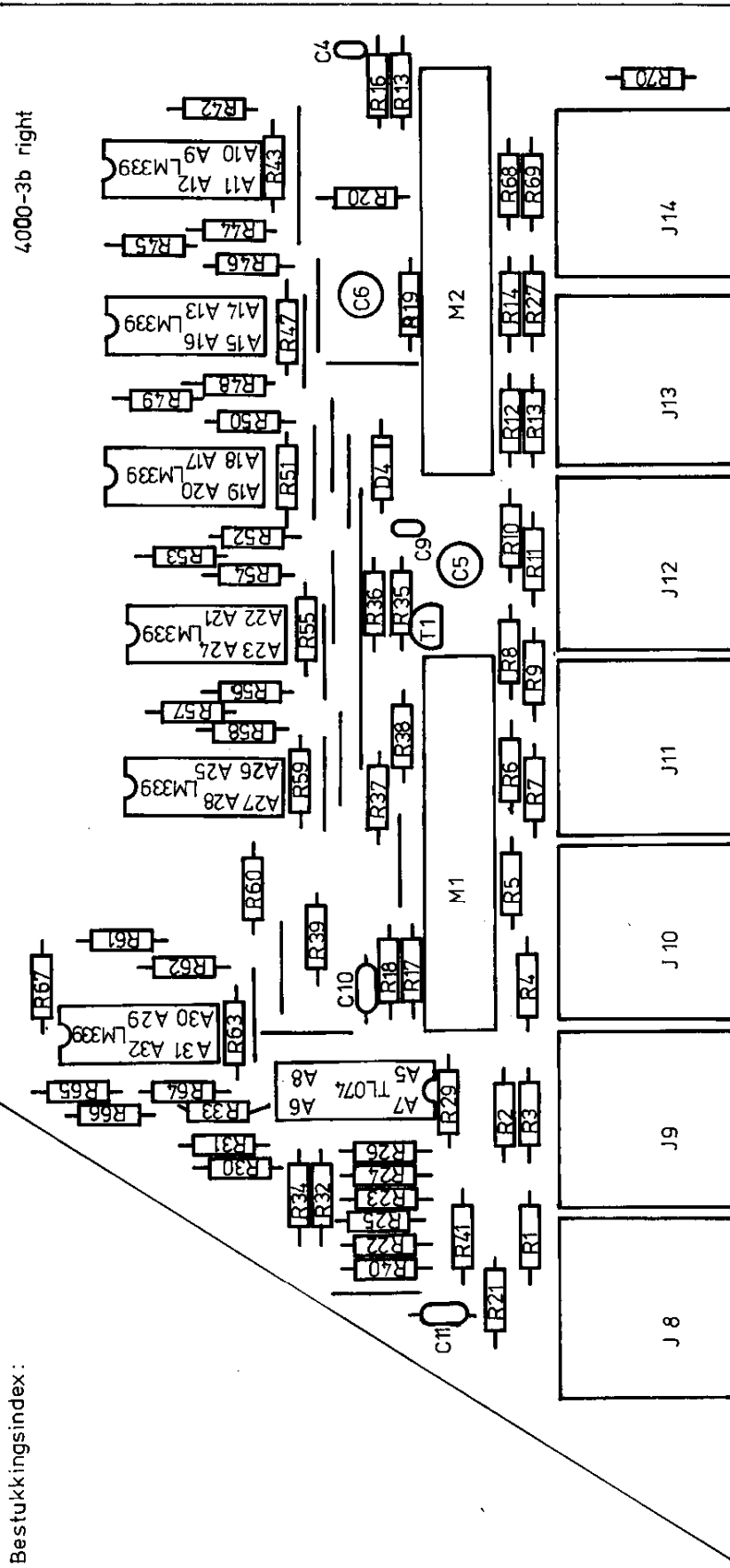
Left version:



Right version:



Bestukkingindex:



PR RIJNKADE 15b 1382 GS WEESP PHONE: 02940 18014 ELECTRONICA BV		TITLE: P.C.B. INDEX.		NOTES:	
DRAWN :		DATE :		CHECKED:	
SHEET. OF		© 1986		DATE :	

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----- == ELECTRONICA B.V. -----

produktie en ontwikkeling van
geluidsmengpanelen en accessoires

Date: 18-03-1986

R & D department

PARTLIST : 4000-3 L+R LEDBAR 25 segm.

print index: b

PartNr	Value	Notes	PartNr
=====			

Left version:

R2	100 E	5%	0717
R5	100 E	5%	0717
R8	28 k 7	1%	0861
R11	28 k 7	1%	0861

Right version:

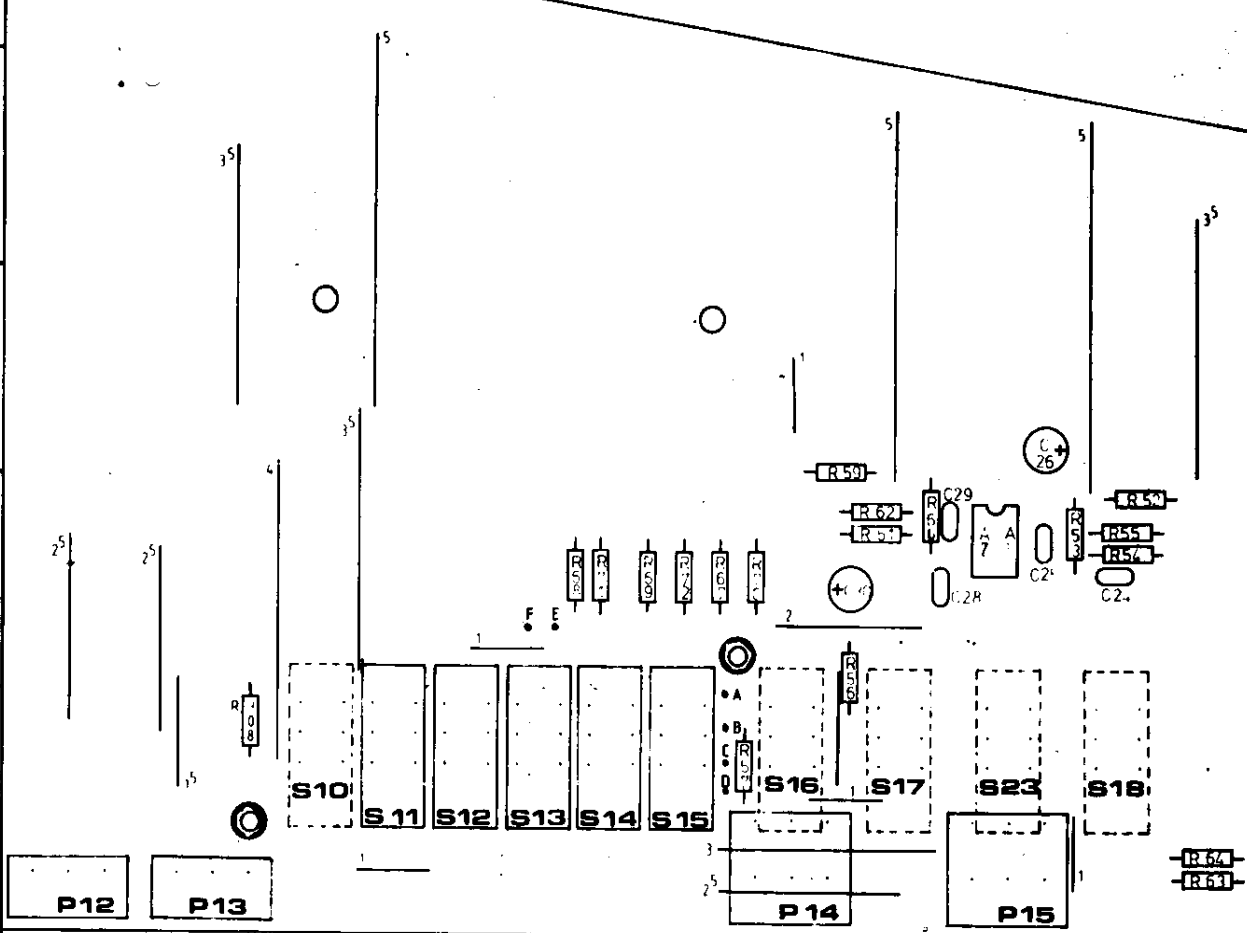
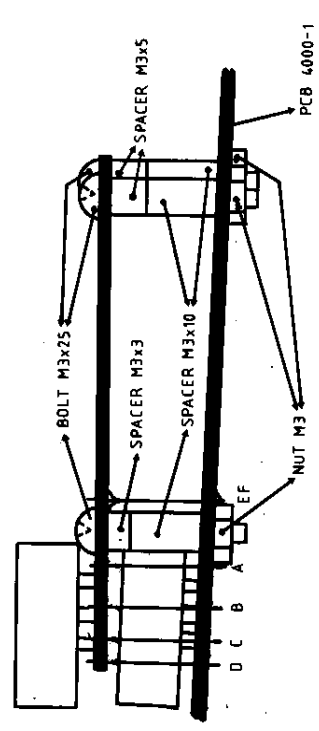
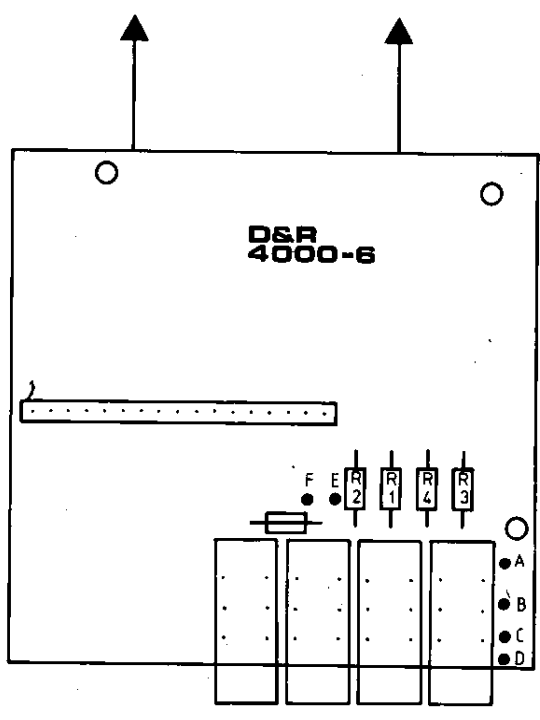
R1	680 E	5%	0727
R2	1 k 8	5%	0732
R3	100 E	5%	0717
R4	100 E	5%	0717
R5	1 k 8	5%	0732
R6	1 k 8	5%	0732
R7	680 E	5%	0727
R8	100 E	5%	0717
R9	680 E	5%	0727
R10	1 k 8	5%	0732
R11	100 E	5%	0717
R12	680 E	5%	0727

Both versions:

R13	680 E	5%	0727
R14	100 E	5%	0717
R15	680 k	5%	0763
R16	1 k 8	5%	0732
R17	4 k 25	1%	0844
R18	10 k 0	1%	0848
R19	10 E	5%	0705
R20	10 E	5%	0705
R21	15 k	5%	0743
R22	100 k	5%	0753
R23	10 k	5%	0741
R24	100 E	5%	0717
R25	10 k	5%	0741
R26	100 E	5%	0717
R27	1 k 8	5%	0732
R29	100 k	5%	0753
R30	10 k	5%	0741
R31	100 E	5%	0717
R32	10 k	5%	0741
R33	100 E	5%	0717
R34	100 k	5%	0753
R35	1 k 0	5%	0729
R36	1 k 5	5%	0731
R37	8 k 2	5%	0740

R39	215 k	1%	0800
R40	100 k	5%	0753
R41	10 k	5%	0741
R42	1 k 37	1%	0832
R43	1 k 21	1%	0830
R44	1 k 10	1%	0827
R45	976 E	1%	0828
R46	866 E	1%	0826
R47	768 E	1%	0825
R48	681 E	1%	0824
R49	619 E	1%	0823
R50	536 E	1%	0822
R51	487 E	1%	0821
R52	432 E	1%	0819
R53	392 E	1%	0818
R54	349 E	1%	0864
R55	311 E	1%	0817
R56	272 E	1%	0820
R57	232 E	1%	0816
R58	201 E	1%	0813
R59	185 E	1%	0812
R60	162 E	1%	0811
R61	142 E	1%	0847
R62	133 E	1%	0805
R63	115 E	1%	0854
R64	88 E 7	1%	0809
R65	113 E	1%	0806
R66	100 k	5%	0753
R67	3 k 9	5%	0736
R68	1 k 8	5%	0732
R69	100 E	5%	0717
R70	680 E	5%	0727
C4	1/35	tan.	0276
C5	47/25	elco rad.	0282
C6	47/25	elco rad.	0282
C9	10/16	tan.	0278
C10	0.1/63	ker.	0241
C11	0.1/63	ker.	0241
D4	5V6	zenodiode	0351
T1	BC 546	NPN	0328
A5 t/m A8	TL 074	bifet.	0305
A9 t/m A12	LM 339	quad.comparator	0316
A13 t/m A16	LM 339	quad.comparator	0316
A17 t/m A20	LM 339	quad.comparator	0316
A21 t/m A24	LM 339	quad.comparator	0316
A25 t/m A28	LM 339	quad.comparator	0316
A29 t/m A32	LM 339	quad.comparator	0316
Left version:			
J1 - J7	Cliff jack	stereo break	0432
Right version:			
J8 - J14	Cliff jack	stereo break	0432
Both versions:			
M1	10 pins top entry connector(0.156'')		0426
M2	11 pins top entry connector(0.156'')		0427

A B C D E F G H I K L



NOTES:

P.C.B. INDEX.

TITLE:
**4000 SUB 5-8
ASSEMBLING**

DRUNKADE 15b
138208 WEESP
HOLLAND
PHONE: 02940 18014
ELECTRONICA BV

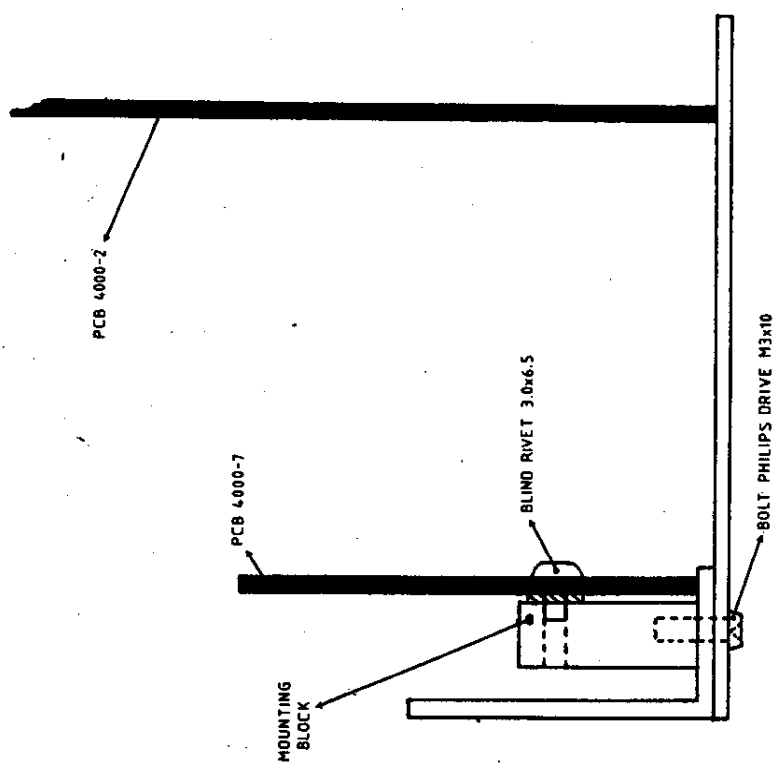
DRAWN : M v/d Valk

DATE : 24-3-1986

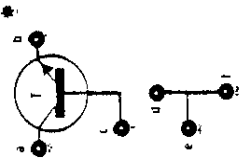
CHECKED:

SHEET OF 1984

A	B	C	D	E	F	G	H	K	L
1									
2									
3									
4									
5									
6									
7									



	RJUNKADE 15b 1382 GS WEESEP HOLLAND PHONE: 02940 18014 IELECTRONICA BV	TITLE: 4000 MSTR 5-8 ASSEMBLING	P.C.B. INDEX. DRAWN : M v/d Valk DATE : 24-3-1986 CHECKED:	NOTES:
SHEET	OF	© 1984	PCB 4000-7	PCB 4000-2



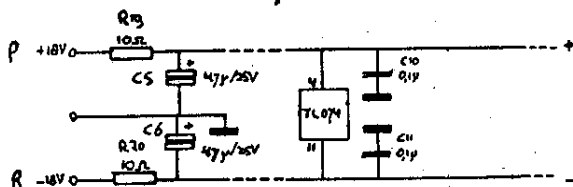
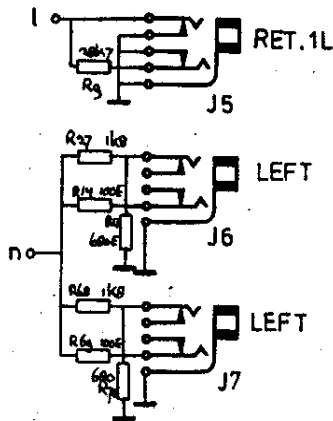
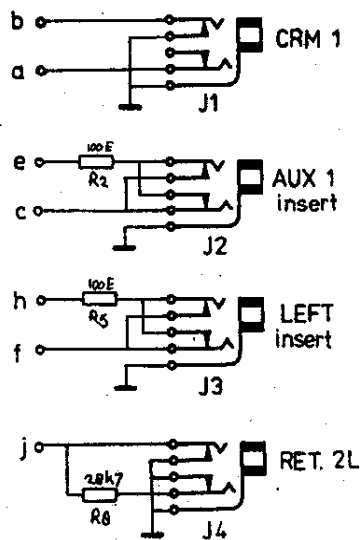
The Transformer used for The phantom:

$\Rightarrow 36V \text{ sec.}$

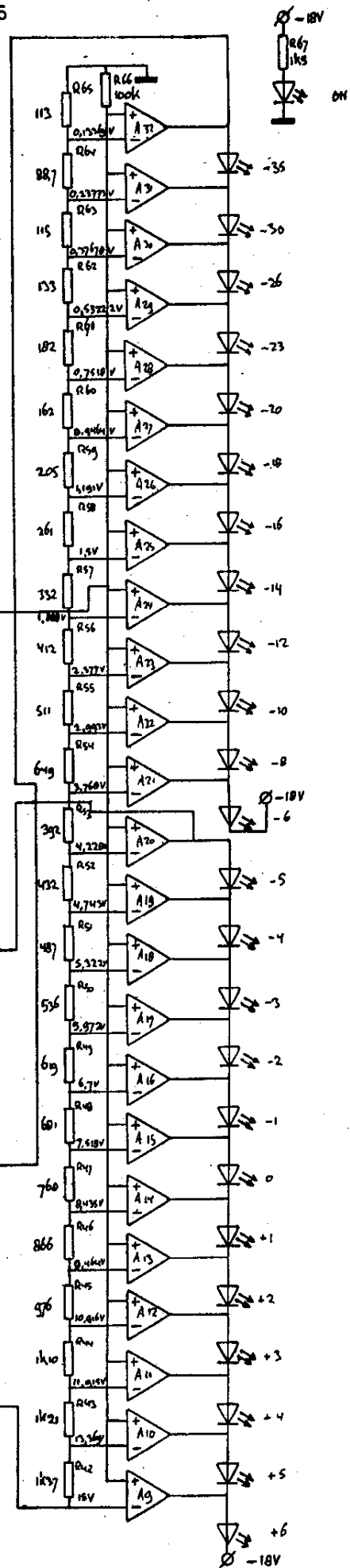
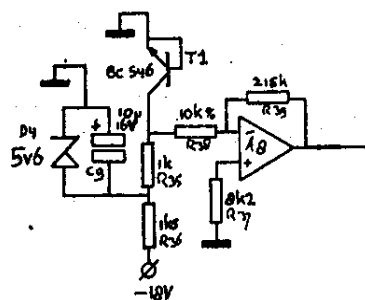
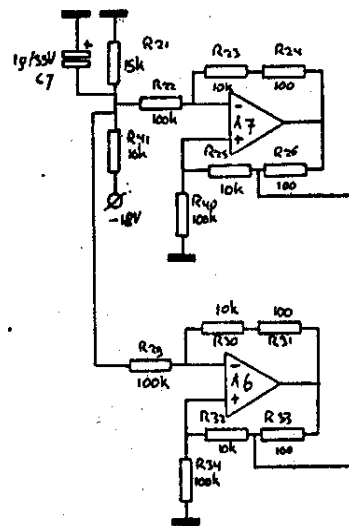
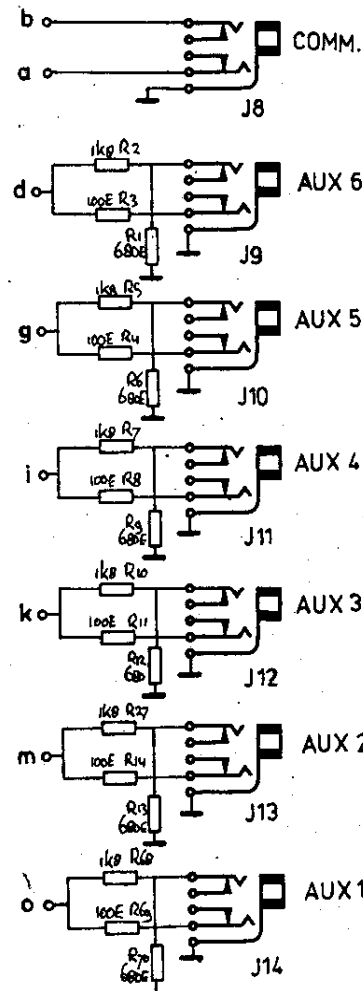
TITLE : SUPPLY 000PS		P.C.B INDEX : a	NOTES * ONLY FOR SERIES 1500 2000 10
		DRAWN :	
		DATE :	
		CHECKED :	
SHEET OF © 1984			

FOR THE

Left version:



Right version:

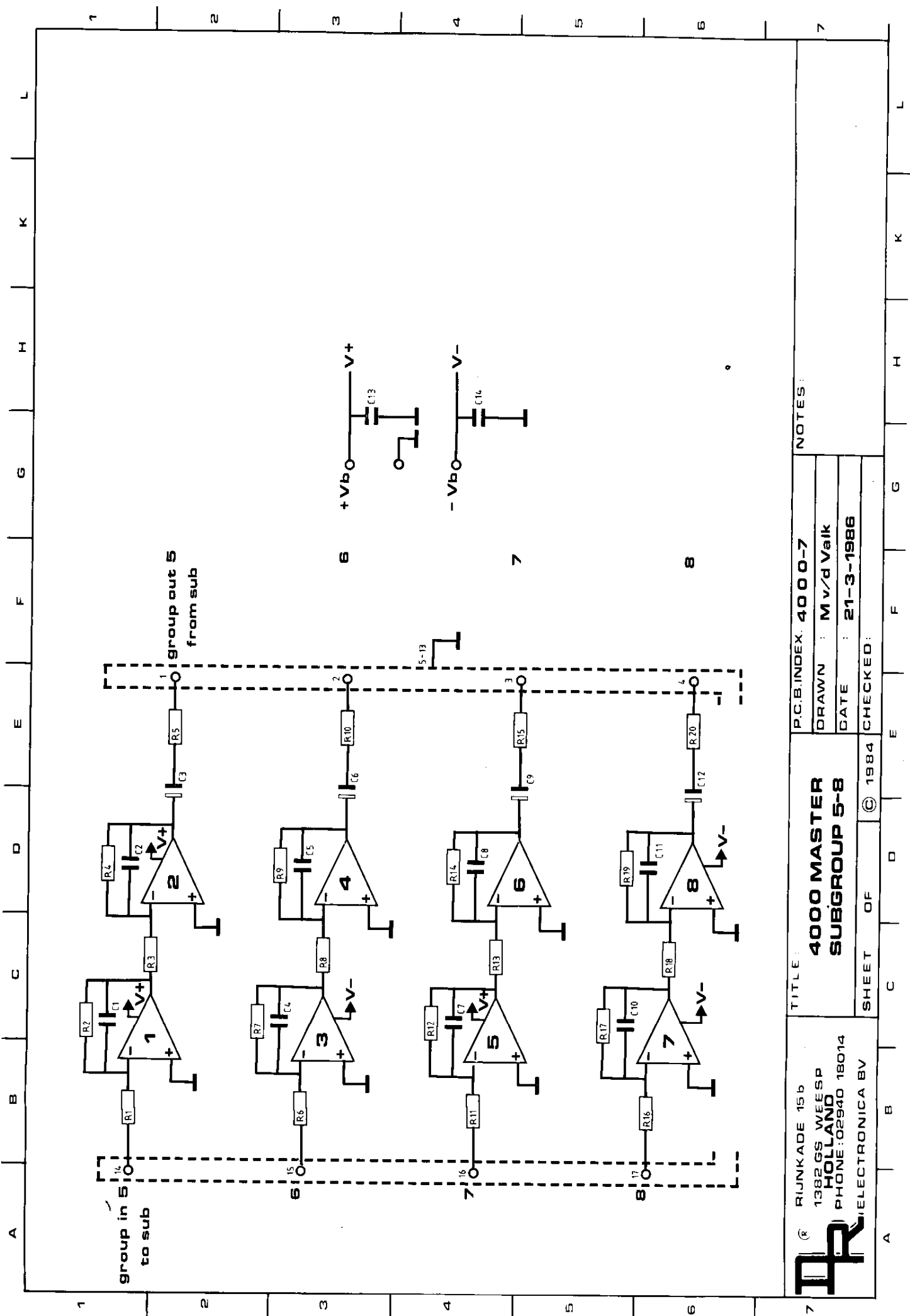



productie en ontwikkeling van
geluidemengpanelen en accessoires

F. & D. ——— department

```
print index:
```

PartNr	Value	Notes	PartNr
R1	10 k	5%	0741
R2	10 k	5%	0741
R3	10 k	5%	0741
R4	10 k	5%	0741
S1-S4	2 x 2	FoxN2UEE	0400




 RIJNSKADE 15b
 1382 GS WEESP
 HOLLAND
 PHONE: 02940 18014
 ELECTRONICA BV

TITLE:
**4000 MASTER
 SUBGROUP 5-8**

P.C.B. INDEX: 4000-7
 DRAWN: M v/d Valk
 DATE: 21-3-1986
 CHECKED:

NOTES:

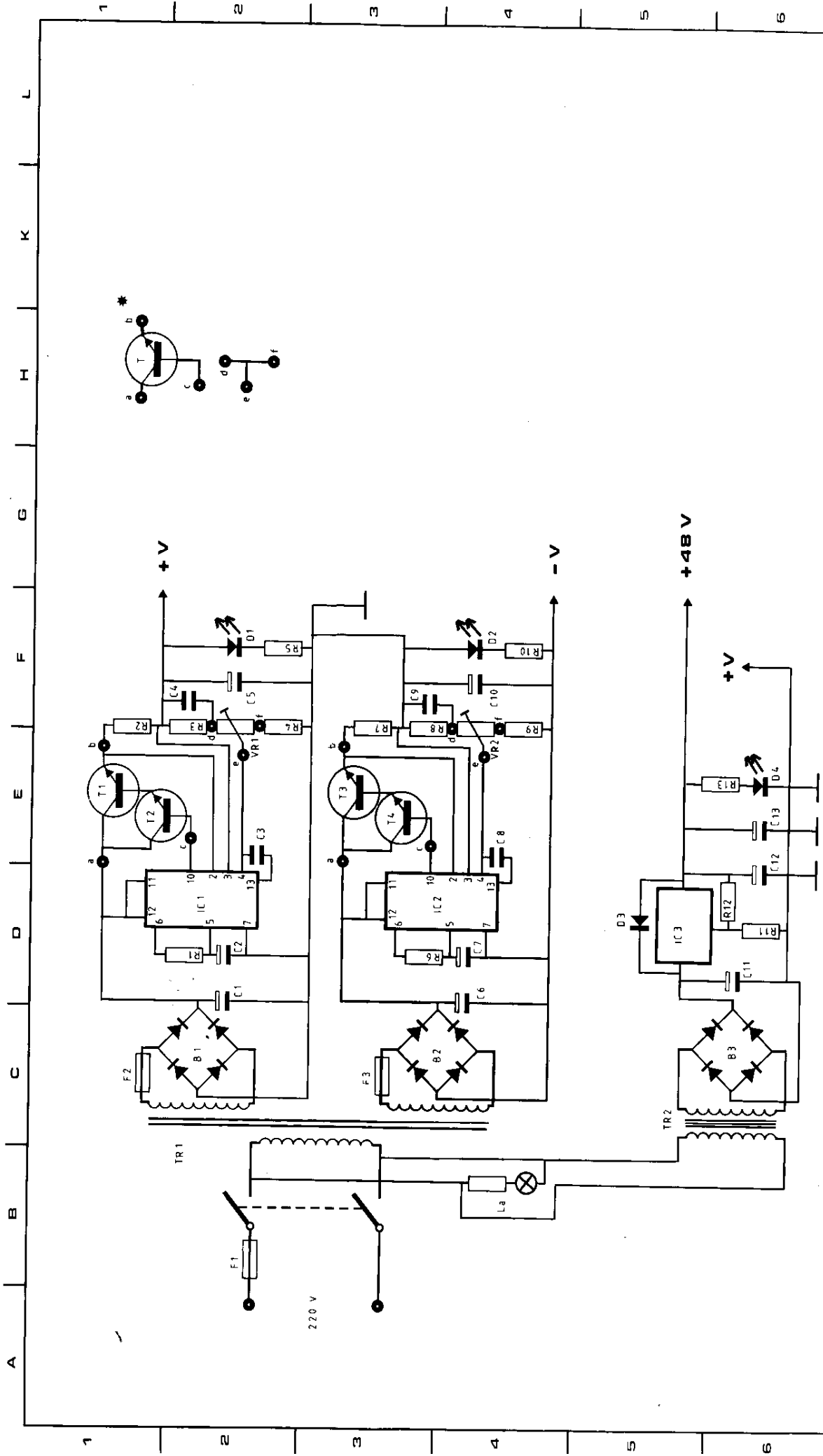



produktie en ontwikkeling van
geluidsmensapanelen en accessoires

R & D department

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print index:
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37




 RIJNKADE 15b
 1382 GS WEESP
 HOLLAND
 PHONE 0440 18014
 ELECTRONICA BV

TITLE:
SUPPLY 000PS

P.C.B. INDEX: **a**
 DRAWN :
 DATE :
 CHECKED:

NOTES:
 *ONLY FOR SERIES 1500 2000-10

SHEET OF **© 1984**

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----- == ELECTRONICA B.V. -----

produktie en ontwikkeling van
geluidsmengpanelen en accessoires

Date: 09-04-1986

R. & D. department

PARTLIST : SUPPLY 000PS

print index: a

PartNr	Value	Notes	PartNr
R1	2 k 2	5%	0733
R2	0.1 E	10%-5W	0785
R3	6k8 2k2	5%	0739
R4	4 k 7	5%	0737
R5	1 k 8	5%	0732
R6	2 k 2	5%	0733
R7	0.1 E	10%-5W	0785
R8	6k8 2k2	5%	0740
R9	4 k 7	5%	0737
R10	1 k 8	5%	0732
R11	470 E	5%	0725
R12	3 k 9	5%	0736
R13	3 k 9	5%	0736
C1	4700 / 40	elco	0299
C2	100 / 25	elco	0292
C3	1000 p	poly	0246
C4	-----	-----	-----
C5	100 / 25	elco	0292
C6	4700 / 40	elco	0299
C7	100 / 25	elco	0292
C8	1000 p	poly	0246
C9	-----	-----	-----
C10	100 / 25	elco	0292
C11	4700 / 63	elco	0300
C12	220 / 63	elco	0293
C13	220 / 63	elco	0293
C14	0.1 / 63	ker	0241
C15	0.1 / 63	ker	0241
C16	0.1 / 63	ker	0241
VR1,VR2	1 k	inst.pot.m	0163
Ic1,Ic2	723	var.reg	0313
Ic3	7824	pos.reg	0324
T1,T3	2N 3055	powerNPN	0336
T2,T4	BD 237	powerNPN	0334
B1,B2	010 / 100	rect.br	0348
B3	B80C1500	rect.br	0346
D1,D2,D4	led 3mm	red 0	0387
D3	1N 4148	sgn	0342
TR1	Toroidal transformer		0570



manufacturer of: recording - broadcast - p.a. - mixingdesks - signal processors

4000 MASTER ADJUSTMENT PROCEDURE PFL CLICKS.

ADJUSTMENT PROCEDURE:

Activate one of the PFL buttons several times and listen at the same time to the Control Room Monitor and adjust the PFL click to it's minimum, by way of the PFL trimmer.

HOW TO FIND THE TRIMMER:

Remove the backplate of the master section. The master section has to be placed in the console. Now adjust with a long screwdriver the PFL trim pot. The trim pot is at the bottom of the print, just below the 18-pins molex connector.

GOOD LUCK!

